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July 23, 2001

Volume 20, Number 30

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60 GIGABIT PORTS, 10-GIGABIT UPLINKS, WIRE-SPEED



RS16-CHS



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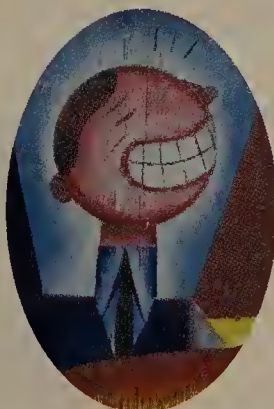
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Citrix bounces back with higher revenue, profits

In a rare bit of positive financial news, Citrix Systems' revenue in its most recent quarter was up 39% over the same period last year, and net income was up, too. **DocFinder: 5159**

ATG unveils quick way to build portals

Art Technology Group is putting together portal-building software for those who don't have a lot of time to work on their portals. The software contains all sorts of personalization tools to enrich the portal experience. **DocFinder: 5161**

Antivirus software vendors warn against Sircam

The recently released Sircam virus is very versatile in its approach. Sometimes it will wipe out your files, and sometimes it fills your hard drive with garbage. The virus will find files on your hard drive and append them to itself as it happily hops into your e-mail and zips off to your friends. Sircam is very peculiar, and it has antivirus vendors intrigued. But don't be too impressed. No matter how many tricks Sircam has up its sleeve, it's still vermin. **DocFinder: 5157**

Microsoft throws Java out of Windows XP

For once, Microsoft has decided to leave something out of Windows. The upcoming Windows XP will not have a Java Virtual Machine (JVM), the environment needed to run Java programs. Instead, you'll have to download an implementation of JVM yourself — whether it is Microsoft's or another company's. Microsoft's opponents have accused Microsoft of working toward its own selfish ends, to the detriment of competitors. Does that sound like the Microsoft we know? **DocFinder: 5158**

AT&T board unanimously rejects Comcast offer

The board of directors at AT&T says \$44.5 billion isn't enough. If Comcast wants to buy AT&T Broadband, it will have to save its pennies. **DocFinder: 5160**

— Jeff Caruso, managing editor, online news

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Compendium

Some doozies from Des Moines

Fusion Executive Editor Adam Gaffin uncovers some prize-winning stories from a Des Moines newspaper on obnoxious cell phone users. **DocFinder: 5152**



Help Desk

An NT server in a NetWare environment

Ron Nutter advises a user on the best way for NetWare and Windows NT to work together. **DocFinder: 5153**

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Fair market value

Edge columnists Daniel Briere and Beth Gage discuss some deadly issues for today's carriers. **DocFinder: 5154**

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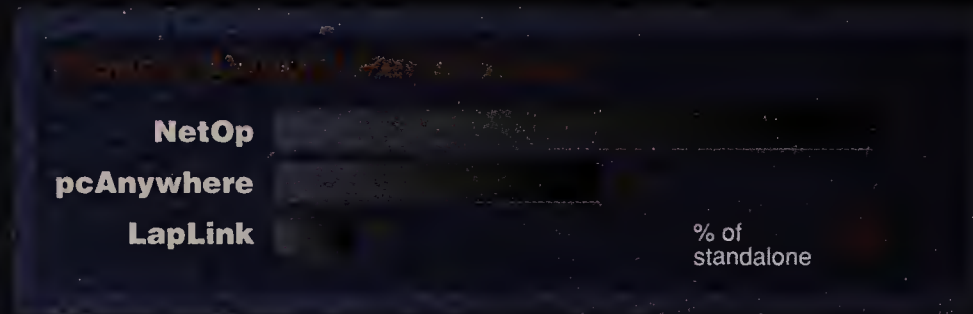
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News

Surveys differ on corporate IT spending trends

BY CAROLYN DUFFY
MARSAN

Three surveys released last week offer sharply divergent views of what's happening to business IT budgets.

Gartner unveiled a study that shows more than half of companies plan to increase IT spending this year, with an average increase of 21.5%. Gartner predicted gross IT spending will be up 10% across all industries.

The Gartner report comes a few days after Merrill Lynch released a more pessimistic survey of CIOs that indicated IT spending will grow only 5.5% in the U.S. this year and will contract 2% in Europe. These figures compare to Merrill Lynch's January projections of 9% IT budget growth in the U.S. and 13% growth in Europe.

Meanwhile, market research firm IDC weighed in with projections of 6.7% growth across the entire U.S. IT market, including hardware, software and services. The IDC figure is

down from 11% growth last year.

The conflicting findings are symptomatic of a shaky economy, in which some industries and companies are faltering while others are expanding. Research on corporate IT spending shows similar disparity.

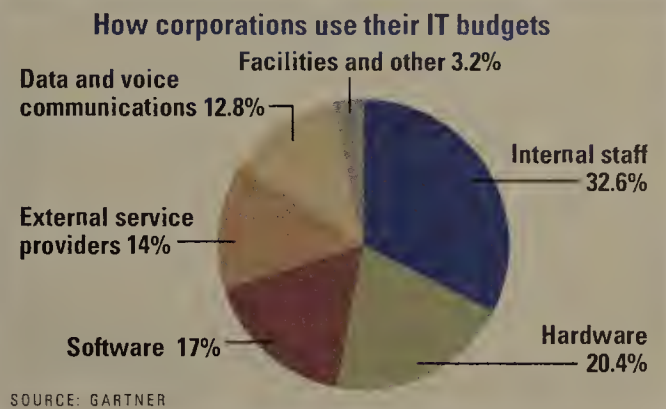
"We all use these research reports to rationalize resources and strategy with the idea that they're directionally correct," says Bob Stack, vice president of IS at NMS Communications, a Framingham, Mass., supplier of telecommunications equipment. But surveys that indicate double-digit growth in corporate IT spending are "not true in my experience," he says.

Stack's IT budget is flat, and he's had to delay a few Web development projects geared toward the company's 600 employees. He also may need to delay some hardware upgrades, including servers, memory and disk space.

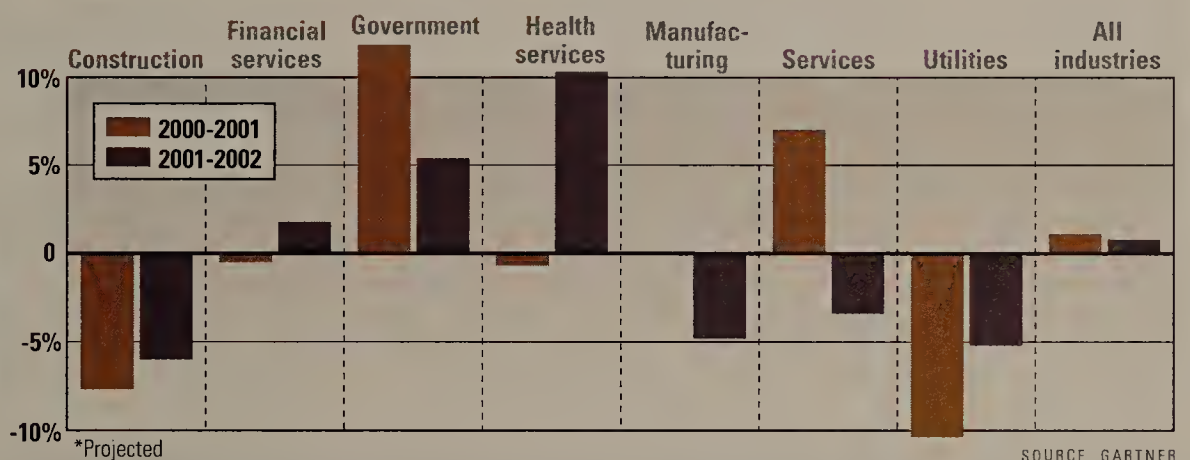
"A guy down the street who
See **Survey**, page 85

Spending spree?

Research groups have reached different conclusions about corporate IT spending trends.



Corporate IT budget growth as % of revenue*



Insurance provider creating massive multiple-use directory

Anthem says Active Directory project to help slash user management and apps development costs.

BY JOHN FONTANA

CINCINNATI — John Reynolds has 10 million good reasons why he needs a stable, secure and scalable directory infrastructure. If those reasons aren't enough, the director and technical architect for e-commerce for insurance provider Anthem Blue Cross and Blue Shield has another 14,000 to back up his argument.

Those figures represent the number of users, internal (14,000) and external (potentially 10 million), who need access to data on his network



in compliance with the Health Insurance Portability and Accountability Act (HIPAA), a 1996 law mandating data security and privacy requirements for the healthcare industry.

"The directory provides more than e-business services. It's a real point of information."

John Reynolds, director and technical architect for e-commerce, Anthem Blue Cross and Blue Shield

The directory is part of an ambitious and ongoing project that has Anthem revamping its entire network infrastructure and application development based on its

e-commerce goals.

Those goals are to build an infrastructure that can easily adapt to technology changes while supplying services such as secure access to applications, insurance services and claims information.

Reynolds, Anthem's director and technical architect for e-commerce, will share the details of the project and results of his directory stress testing at this week's Catalyst Conference in San Diego, which focuses on enterprise infrastructure and is hosted by The Burton Group.

So far, Anthem has spent

nearly \$5 million to build the infrastructure, surround it with security defenses such as intrusion detection and purchase applications.

Reynolds says the project is driven by HIPAA but that it's worth it because the infrastructure will create a single source of user data for all his applications and systems, and provide single sign-on for internal and external users.

Those things were not possible when Anthem was forced to manage users in each of a multitude of systems, including Microsoft, Novell, Unix and legacy mainframes.

See **Anthem**, page 16

NEWS BRIEFS, JULY 23, 2001

Win 2000, NT users face Code Red

A malicious worm named Code Red, which exploits a buffer overflow vulnerability in certain configurations of Windows NT and Windows 2000, is spreading rapidly over the Internet, according to the CERT Coordination Center (CERT/CC). As many as 225,000 computers have already been affected, the organization says. Code Red exploits a buffer overflow in the Microsoft Internet Information Server (IIS) Indexing Service Dynamic Link Library (DLL). The vulnerability is present in most versions of IIS 4.0 and 5.0, CERT/CC says. The vulnerability lets an attacker gain complete control of a targeted system. If an host's default language is English, Code Red will deface all Web pages served by the host with the message "HELLO! Welcome to http://www.worm.com! Hacked By Chinese!"

In addition to Web defacement, the worm degrades overall system performance as it scans other hosts in a bid to propagate itself. Code Red can also initiate "severe denial of service" attacks as it scans noncompromised systems and networks for the IIS buffer overflow vulnerability, CERT/CC says. More information on the IIS Indexing Service DLL and patches that close the vulnerability are available on Microsoft's Web site at www.microsoft.com/technet/treeview/default.asp?url=/technet/security/bulletin/MS01-033.asp.

NaviSite CEO stepping down

Managed application hosting provider NaviSite, owned by CMGI, is undergoing a management shuffle. The company announced last week that CEO Joel Rosen would voluntarily step down from his position July 31. Trish Gilligan, NaviSite's COO, will take over as acting CEO. Rosen, who has been CEO of NaviSite since April 1999, will remain on



Joel Rosen ends a two-year stint as NaviSite's CEO.

board as a consultant. The shuffle comes four months after parent company CMGI announced it was putting NaviSite up for sale. At that time, NaviSite hired the investment banking firm Goldman Sachs to help executives sort through offers of strategic investment or acquisition.

FBI presses digital copyright case

Dmitri Sklyarov, a cryptographer working for Moscow-based software firm ElcomSoft, was arrested by the FBI last week in Las Vegas

and charged with selling software to circumvent copyrighted materials. ElcomSoft sells a \$99 program called Advanced eBook Processor that can decrypt Adobe-format electronic books. Sklyarov had made a presentation about the software at the Defcon hacker convention before he was arrested at his hotel. Sklyarov's case is expected to be the first legal test of the viability of the Digital Millennium Copyright Act, which prohibits trafficking in devices that circumvent copyrighted material. Adobe had earlier taken legal action to try to prevent ElcomSoft, which also makes password-recovery products, from selling Advanced eBook Processor. ElcomSoft executives are arguing that the U.S. law is at odds with European and Russian law, which lets back-up copies be made of electronic books.



Fire disrupts baseball, 'Net access

A freight train carrying hydrochloric acid and other toxic chemicals derailed in a Baltimore tunnel last week, which sparked a fire that took out a router on WorldCom's UUNET Internet backbone. WorldCom did not say how many customers were affected, but said service was restored to most users before the end of the week. Internet customers were not the only victims of the fire. The Baltimore Orioles were forced to cancel two of their games last week due to the blaze.

Microsoft court saga continues

Microsoft last week petitioned the U.S. Court of Appeals to reconsider the evidence that Microsoft "commingled" software code specific to Web browsing with other software code in Windows 98. Microsoft says critical evidence was overlooked in determining that the commingling violated the Sherman Antitrust Act. The petition is the latest salvo in the ongoing antitrust lawsuit against Microsoft. Also, last week Microsoft confirmed it would not include a Java Virtual Machine in its operating systems beginning with Windows XP. The phase-out is part of an out-of-court settlement with Sun over Java licensing.

Ariba posts loss, loses CEO

Business-to-business software vendor Ariba last week announced a quarterly net loss of \$273.5 million and the departure of CEO Larry Mueller, who was named to that post only in May. Company Chairman and former CEO Keith Krach will temporarily replace Mueller. While Ariba managed to reduce overall costs during the past quarter through layoffs and other expense reductions, Ariba's CFO Bob Calderoni said that more layoffs could come in the near future.

Start-up offers inside look at service levels

BY DENISE DUBIE

VIENNA, VA. — A new company this week unveiled two services that measure network and Web site performance data to help corporations ensure they are getting their money's worth from service providers.

AperServ tracks and measures how well outsourcers and service providers perform and meet service-level agreements (SLA). The company says its services are best suited for corporations that have multiple service providers and can't keep track of all their SLAs.

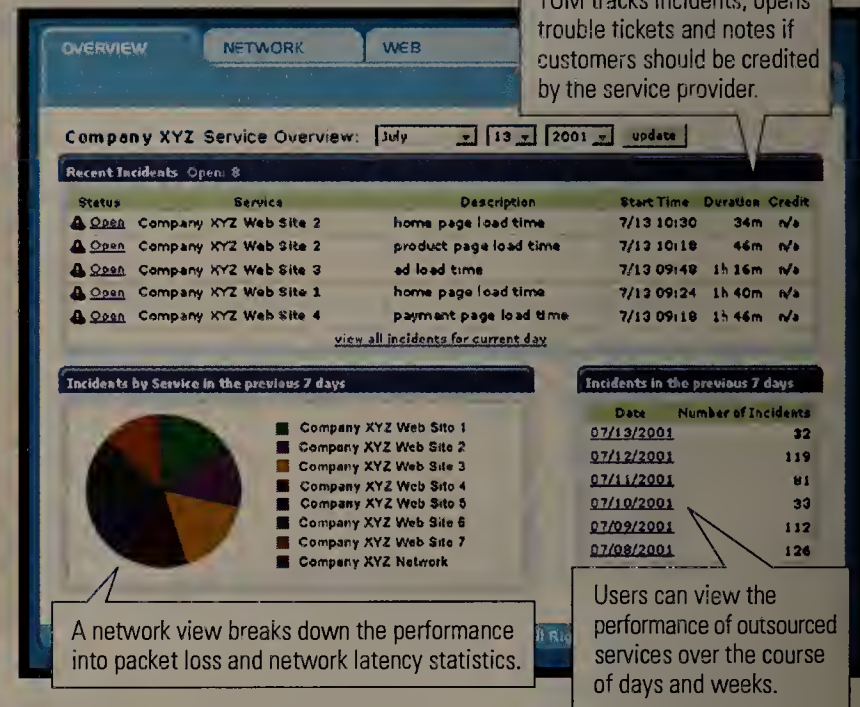
connection data, all of which give the company an idea of how well its site performs. The TOM service also automatically sends trouble tickets directly to the service provider for Brainbench.

"In general, SLAs are the 'dirty little secret' in the outsourcing world," says Hurwitz Group analyst Jasmine Noel. Although everyone signs them, she says there is not much people can do to manage the services associated with them.

AperServ and its competitors Oblicore and Brix Networks are

Peeping TOM

AperServ's Technology Outsourcer Management (TOM) system lets users measure services provided by outsourcers to ensure service-level agreements are being met.



AperServ's two services are Technology Outsourcer Management (TOM) and Technology Internal Management (TIM). TOM tracks the performance of external service providers and outsourcers, while TIM monitors intranets.

"[AperServ] gives us access to service-level data that we normally wouldn't take the time to compile," says Jack Gruninger, CTO at Brainbench, an online IT skills certification provider. "We get a cost-effective way to see how our service provider is living up to its SLA."

Brainbench uses AperServ to monitor its Internet connectivity, Web hosting and WAN

addressing this issue. AperServ offers corporations and service providers similar ways to track performance, while Oblicore and Brix Networks have focused more on letting service providers report their performance to customers.

AperServ installs a box on a service provider's or outsourcer's network with their consent, and then places agents inside and outside the service provider's point of presence. AT&T, Cable & Wireless, Exodus Communications, Qwest Communications, Sprint and UUNET are among the

See **AperServ**, page 85

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Translation: I think I just deleted all my files.

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CNT looks to link storage nets over IP

BY DENI CONNOR

MINNEAPOLIS — Storage communications vendor CNT is rolling out a compact router this week that lets IT professionals link and consolidate data from geographically separated storage-area networks over IP connections.

The device also lets large, block-oriented storage data be sent over existing Ethernet LANs without causing bottlenecks or latency.

The UltraNet Edge Storage

Router is one of the first storage devices to combine the functionality of two emerging storage standards: Internet SCSI (iSCSI) and Fibre Channel over IP. With the router, companies can replicate, share or back up data between remote sites, distribute content to diverse sites and manage distributed storage resources from a single console.

The iSCSI protocol is the industry's attempt to bring block-oriented storage data, such as



CNT's UltraNet Edge Storage router combines iSCSI and Fibre Channel over IP.

that seen in databases and customer relationship management packages, back from difficult-to-implement SANs to the local network, where the data formerly caused bottlenecks. Fibre Channel over IP bridges

geographically dispersed SANs so they can share data or create fault-tolerant configurations for disaster recovery and backup.

The UltraNet storage router is a 1U (1.75-inch-high) rack-mountable device with up to four connections, which can be configured in any combination of up to two Fibre Channel ports and two 10/100 or 1,000M bit/sec Ethernet ports. To transport iSCSI data, a technology CNT will incorporate by the end of the year will support SCSI- or Fibre Channel-based storage arrays that would be connected through an UltraNet Edge Storage Router to the Ethernet LAN. The company will incorporate InfiniBand, the upcoming switched fabric bus architecture, into the UltraNet storage router by the second half of next year.

Arun Taneja, an analyst with Enterprise Storage Group, says the significance of this device is its ability to weave together different storage environments. "iSCSI does not know how to deal with Fibre Channel devices [without a separate router]," Taneja says. "If a company wants to bring the world of iSCSI and Fibre Channel together, they are going to need something more than [Fibre Channel over IP]. That's iSCSI."

While many vendors say they will support iSCSI and Fibre Channel over IP in the same device, only SANcast Technologies has announced a compact Fibre Channel over IP and iSCSI switch, the GFS-8, which starts at \$32,000. Nishan Systems, SAN Valley, Cisco and Brocade Communications intend to support both iSCSI and Fibre Channel over IP.

The UltraNet Edge Storage Router can be managed from a Windows or a browser interface.

CNT's UltraNet Edge Router is available starting at \$28,000.

CNT: www.cnt.com

Stratacache debuts high-end cache device

Superliner device could help reduce maintenance costs, administration.

BY APRIL JACOBS

DAYTON, OHIO — Cache device maker Stratacache plans to debut an enterprise cache system Aug. 15 that will let users scale from one to 16 processors in a single box, providing an alternative to clustered cache offerings that can be complex to set up and maintain.

The company's Superliner Series will be a significant upgrade to Stratacache's low-end offering, the Metroliner cache device, which features a single processor.

With the new box, Stratacache's approach is to reduce maintenance and support issues by giving network managers a single device to maintain.

In addition to scaling to 16 Intel-based Pentium processors ranging in speeds from 700 MHz to 1.3 GHz, the Superliner Series features hot-swappable power supplies and storage.

The system also accommodates up to four power supplies for full redundancy.

Network features include one to four Gigabit Ethernet uplinks, one to 48 Fast Ethernet uplinks, NEBS compliance for network operations centers, 1G byte to 64G byte of cache memory, and 100G byte

to 16 terabytes of storage.

Peter Christy, an analyst with Jupiter Research, says Stratacache's offering could be attractive to users with e-commerce sites because its single-box approach may make it easier to meet end user's variable demands for content.

Unlike cluster offerings from competitors such as Network Appliance, Cache-Flow, Inktomi, and F5 Networks, Stratacache's Superliner lets users essentially direct traffic to a single cache that is dedicated to serving particular types of requests based on the URL of the content request.

In a traditional cache environment, a news site might have cached content about weather on one cache device, while requests for feature stories about health issues might be handled by another cache.

Those caches, which typically sit in front of Web servers on the network, make it possible to deliver requests for content quicker than relying on general Web servers, which must construct page views from scratch. Caches store content in memory, giving them the ability to serve

content faster. Clustered caches tend to work well, according to observers, but like all devices on a network, they require maintenance.

Superliner will also support streaming formats from Microsoft, Real Networks, Quicktime and MPEG video systems.

First releases

The first two products released in the Superliner Series will be the Superliner 4000, which will cost \$70,000, and the Superliner 16000, which will be priced at \$150,000. Base models of the Superliner 4000 support up to four processors and 2 terabytes of storage, with transaction processing capabilities of up to 5,000 request/sec.

The Superliner 16000 will support up to 16 processors and 16 terabytes of storage, with transaction processing capabilities of 20,000 per second. Superliner 16000 prices range from \$70,000 to \$2.5 million depending on how many processors and how much memory and storage are purchased.

Chris Riegel, a product manager for Stratacache, says the company will also offer a midrange Superliner system in late October or early November, called the Superliner 8000.

Stratacache: www.stratacache.com

Caching in
The caching appliance market was worth \$370 million in 2000. By 2003, it will be worth \$3.378 billion.
SOURCE: GARTNER

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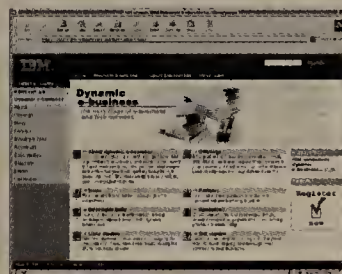
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Dell taps low-end switch market

BY APRIL JACOBS

AUSTIN, TEXAS — Dell said last week it would begin offering its own brand of low-cost, easy-to-install network switches aimed at small to midsize business customers.

Dell, which stayed on the sidelines in years past as competitors such as Compaq got into the switching game, says the time is now right to sell switches since so many of its small business customers buy third-party vendors' switches through Dell anyway. Dell figures it might as well make more profit on its switch sales.

Dell's PowerConnect switches also could help existing customers cut down on the number of vendors they deal with for service and support. Buying servers and net gear from one vendor could also help alleviate interoperability problems.

Brooks Gray, a senior analyst with Technology Business Research, says Dell's PowerConnect switches will be manufactured by Delta Electronics of Taiwan. Gray says any volume sales Dell achieves in its switches will likely be in companies with fewer than 100 end users, because most larger companies will want the security of going with a more established switch player, such as Cisco, Intel or 3Com.

"These products at the low end are all commoditized. You install them in a couple of seconds and they are up and running," Gray says. "So another reason to go with Dell is because of the price — Dell will attempt to underprice competitors."

Some of Dell's competitors are also its partners, however. Dell resells switches from 3Com, Foundry Networks and NetGear, and says it will continue to offer those products for users who want them.

The 16- and 24-port PowerConnect switches will be available in August. Pricing and product details were not available. ■

10G Ethernet standard hits a snag

BY PHIL HOCHMUTH

While vendors are already rolling out prestandard 10G Ethernet gear, a bump in the draft approval process may cause the standard to be delayed by up to three months.

This setback may also indicate that optical components in prestandard products are being built on designs that are not in line with the standard.

Earlier this month, the IEEE voted against moving the 802.3ae (or 10G Ethernet) standard to the final stage of the standards process before ratification, called the "sponsor ballot" stage. It said component vendors have not readied enough prototype equipment that conforms closely enough to the standard for proper testing, says Bob Grow, an Intel engineer, chair of the 10 Gigabit Ethernet Alliance (10GEA), and secretary of the IEEE 802.3 executive committee.

"We as a committee decided we wanted to demonstrate 10 Gigabit feasibility before the

standard is ratified," Grow says. "Some people [on the working group committee] feel a little uncomfortable to go to that next level considering the point at which the technology has been demonstrated right now."

Foundry and Riverstone Networks will have 10G Ethernet gear available this quarter, while Avaya, Enterasys and Nortel say theirs will be ready by year-end.

The early products may rely more on SONET-based optical interfaces than interfaces outlined by the standard, Grow says. This does not mean that prestandard products are completely out of line with the 802.3ae draft. Most systems that the IEEE and 10GEA have seen and reviewed are on the mark in terms of the logic needed for 10G Ethernet, with only the optics, or lasers that do the physical transmitting of signals, deviating from the draft.

Grow says that prestandard switches that incorporate optics based largely on SONET components could have no problem talking to 802.3ae-compliant

Annals of the 10G Ethernet standard

So far, the IEEE's 10 Gigabit Ethernet Task Force has moved toward the standard's ratification at a steady clip.

1999

March: High-speed study group formed to explore feasibility of 10G Ethernet.

2000

March: IEEE 802.3ae task force formed, specifics in the standard take shape.

July: Last new proposal made to the standard.

November: Last date for adding new features to the standard.

2001

May: Last technical change made to the standard.

2002

March: Targeted time for standard's approval.

optical gear when it is available, but this is not a given, since such tests have not been run. These SONET components will likely cost 10 times more to make than optical parts that adhere to the 802.3ae draft, he adds.

Despite the minor procedural setback, Grow says the standard draft is technically sound and could still be ratified

by the March 2002 target date.

"The [10G Ethernet standard] document is really in good shape," Grow says, adding that the recent IEEE vote to hold off on proceeding to sponsor ballot stage was not based on technology flaws in the draft.

"It was strictly a procedural thing," he adds. "Achieving March [as the target date for ratification] is still realistic, though aggressive."

Still, as with any prestandard product, Grow says "buyer beware" is a prudent approach.

"We have always encouraged users buying prestandard parts to ask vendors what they'll do if products they're selling now aren't interoperable with those built to the standard when it's ratified," Grow says. "It would be fair to say that a little bit of caution is appropriate at this point."

But some carriers can't wait, according to Tim Wu, Riverstone's technical marketing director, who also is involved with the drafting of 802.3ae.

"The products we're offering now are there to fill our carrier customers' huge demand for bandwidth right now," Wu says. Riverstone customers include metropolitan Ethernet service providers such as Telseon and traditional carriers such as Verizon and WorldCom.

Even though Riverstone's products are prestandard, Wu says this will not affect customers in the long run.

"The products we're offering now will ultimately be interoperable with the standards-based products that come out next year," he says. ■

RBOCs dipping toes into metro Ethernet pool

BY MICHAEL MARTIN

During the past year, metropolitan Ethernet providers such as Yipes, Cogent, Telseon and IntelliSpace have made waves with business services ranging from 1M bit/sec to 1G bit/sec at prices significantly lower than those for traditional high-bandwidth connections such as T-1s and T-3s.

While the regional Bell operating companies generally haven't responded aggressively with similar metropolitan Ethernet offerings, they're not standing still either. They all conduct projects for large customers that ask for Gigabit Ethernet connections, and they all have more standard services available or in the works.

And why not? In a new report, research firm IDC predicts that U.S. metropolitan Ethernet services revenue will soar from more than \$155 million in 2001 to more than \$740 million in 2006. That's an

Gearing up for Gig E

Here's what the RBOCs are up to with metro Ethernet services.

BellSouth:

- On the verge of unveiling tariffed Gigabit Ethernet services.

Qwest:

- Offers Gigabit Ethernet services in 25 out-of-region markets.
- Preparing to roll out more shortly.

SBC:

- Began offering GigaMAN, a point-to-point Gigabit Ethernet metro service, last year.
- Preparing to unveil new Gigabit Ethernet offerings shortly.

Verizon:

- Testing DWDM gear in its labs.
- Will roll out Gigabit Ethernet services once it's convinced vendors' gear will interoperate.

annual compounded growth rate of over 35%.

"They realize they need to enter this market, but they're

not being pushed too hard," says Nick Maynard, an analyst with The Yankee Group. "I don't think their data services revenue has been impacted."

And it's still early enough where it shouldn't be hard for the Bells to catch up with their smaller, more nimble competitors, Maynard notes. "They had to do the same thing with DSL, and look how that turned out."

So far, Qwest Communications (which now owns US West) has been the most aggressive RBOC in rolling out metropolitan Ethernet services. Earlier this year, the company announced it was offering Gigabit Ethernet services in 25 out-of-region markets with help from partners, including Telseon. Qwest plans to add more markets this year but won't comment on whether those markets will be in or out of region.

SBC Communications also offers a Gigabit Ethernet See **Ethernet**, page 85


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Anthem,
continued from page 9

"You need to have data in one place for use by all systems," Reynolds says. "You only want to construct that data once when you're dealing with millions of users."

The Anthem directory, along with Web access control software, will be key for managing users and their privileges.

It also provides additional capabilities such as self-service account maintenance, delegated administration, role-based security, auditing and services that pull user data from the directory into forms-based applications.

"When we built the directory infrastructure we didn't just build an e-business infrastructure, we built an enterprise directory infrastructure that supports a majority of our business initiatives around access to data, employee data or whatever data we need," he says.

"So it's an internal directory and a Web directory at the same time," he adds.

A pioneering move

That is a pioneering move because it begins to prove that a directory can support a pliable enterprise infrastructure that can be molded to accommodate the glut of unique users and services inherent in e-commerce.

And it begins to blur the lines between managing internal and external users and resources without compromising security.

It's that kind of flexibility that defines the Anthem infrastructure and will eventually help the company slash its user management and application development costs.

The flexibility also helps Anthem deal with its many acquisitions.

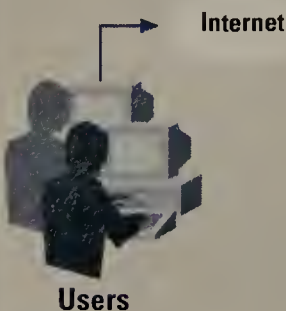
"Our strategic direction is consolidation," Reynolds says. "We are an acquisition company so we are constantly acquiring new technologies that we have to adapt into our infrastructure."

A year ago the company began consolidating its user accounts from systems such as human resources and Lotus Notes into Microsoft's Active Directory after choosing it over Novell's eDirectory. Now the company is rolling in administration of Unix and NetWare accounts and user infor-

Healthcare helper

Anthem is pioneering the use of Microsoft's Active Directory to provide secure Web-based access to corporate applications based on Java or Windows.

1 Anthem uses OpenNetwork's Directory Smart technology, which works with Active Directory, to determine the identity and access rights of end users visiting the company's Web servers.



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mation from legacy systems.

In parallel, Anthem mapped out the reinvention of its network, building a highly redundant, dual infrastructure for e-commerce around Java and Microsoft.

Web servers on the presentation level are IBM's Apache-based HTTP Server and Microsoft's Internet Information Server. Application servers in the middle tier are BEA's Java-based WebLogic and Microsoft's COM servers. The infrastructure

relies on Oracle 8i databases and legacy systems for back-end data, and uses redundant servers for fault tolerance.

It all runs on Windows 2000 and Compaq four-way and eight-way servers and ties into Active Directory.

With that architecture, Anthem is pioneering the use of Active Directory as a Web-based directory. Microsoft has only recently talked about features that let companies exploit Active Directory beyond

its basic support for Windows 2000 users.

Anthem already has nearly 14,000 internal desktops using the directory to gain secure access to corporate resources, including users connected through VPN and dial-up accounts.

Now the focus is on building a directory-based Web access control system on top of Active Directory using OpenNetwork Technologies' Directory Smart, which will provide single sign-

on internally and externally for what could eventually be more than 10 million users.

Other services also on tap

But Directory Smart also will provide other services.

"We have the ability to do delegated administration," Reynolds says. "I can create an account in Directory Smart and specify that account as an administrator, not for the directory or Win 2000, but within

See **Anthem**, page 17

DIRECTORY, SECURITY SERVICES EMERGING

Directory and security services are beginning to merge—a development that will greatly further the role corporate networks play in e-commerce.

This is according to Jamie Lewis, president of The Burton Group, who will expand on that theme and others involving enterprise network services during the consulting firm's annual Catalyst Conference this week in San Diego. The conference also will feature a network infrastructure track focused on wireless, voice and data convergence, and optical networking.

"We've seen the directory and security emerge first in and of themselves," Lewis says.

"But now they are starting to combine into identity and access management. We are starting to see the need to extend the two and make them portable across enterprise boundaries. It is an important

trend," he adds.

Lewis says the merger of the two network services complements the Web services theme being trumpeted by major vendors, including Hewlett-Packard, IBM, Microsoft, Oracle and Sun.

"These Web services are proposals for building distributed applications," Lewis says. "The key question is how will those applications link to user identity information and access management." Those links will have to happen across business-to-business trading communities, exchanges and portals.

He says companies must simplify their existing network infrastructure and create a network that can scale for use by internal users and external customers and business partners.

Lewis says standards will be key and he points to two emerging efforts: the Security Assertion Markup Language (SAML), which is a common XML security

standard for exchanging authentication and authorization information. The other is the XML Key Management System (XKMS), which is a standard key management service comparable to public-key infrastructure (PKI).

"If you log into a portal site that is an aggregation of services [from multiple companies], how do you gain access to all the piece parts? You use SAML to log into one site but gain access across enterprise systems," Lewis says.

The SAML specification is under development at the Organization for the Advancement of Structured Information Standards.

Lewis says XKMS is important because it subtracts some of the complexity from PKI, a system for secure communication. XKMS is under development at the World Wide Web Consortium.

— John Fontana

Anthem,
continued from page 16

Directory Smart so that account would have a delegated right to manage or create accounts for a list of people underneath it. That is important in a healthcare space because a lot of the time we are delegating those types of authorities to our group plan administrators and such."

Native user objects

That also speaks to another important issue Anthem has addressed with its directory.

Directory Smart uses native user objects from Active Directory so Anthem does not have to create and manage internal and external objects for the same user.

A user object is a combination of attributes such as name, address, password and telephone number.

"We wanted to set up self service so people could do things like change their passwords," Reynolds says.

"We can do those more internal business types of things if we have one object. Having more integrated access with the objects we use for our network operating system management has been a very big plus for us," he says.

Anthem also uses Directory Smart and standard Java 2 Platform Enterprise Edition security application programming interfaces to make it easier for developers to use Active Directory to handle authentication and authorization services for all applications.

Using those standard APIs, Anthem's BEA WebLogic application servers interact with Directory Smart to obtain login and access data stored in the directory.

Besides those features, the directory supports other applications.

"The directory provides more than e-business services," Reynolds says. "It's a real point of information. If someone comes to a Web form and needs some help the idea is to provide interaction with customer service. "We can hook the directory into telephony, [customer relationship management] and help desk systems." ■

Start-up to centralize security mgmt.

BY ELLEN MESSMER

MOUNTAIN VIEW, CALIF. — Start-up Ponte Communications this week will debut software for centralizing control over a host of vendors' network gear, making it one of the few companies trying to bring security management under one umbrella.

Ponte's nsControl Platform — to be announced at the Catalyst Conference — is designed to let managers centralize and automate equipment configuration, user password management and software updates for firewalls, VPNs, routers and broadband customer premises equipment. It supports Alcatel, Cisco, Netopia, Siemens and SonicWall equipment. Support for other vendors' equipment can be added within a few weeks based on demand, according to Ponte CTO Mark Epstein, a former McAfee manager and one of Ponte's founders.

Ponte began three years ago as a consulting firm, but got into the software game when it developed nsControl for an unnamed Wall Street firm that wanted to con-

solidate its network security system.

The market Ponte is entering is still somewhat of a niche area, with NetForensics and e-Security being among the few challengers.

The building blocks

The Ponte software consists of two components: a Solaris-based Control Server and a network control point. The Control Server uses the open source database called MySQL to maintain the record of passwords and configuration settings of all the network equipment under its control.

The network control point is a PC-based software agent, which can be deployed at remote locations and LAN segments near the equipment nsControl manages. The Control Server pushes management change requests in an encrypted session to the network control points, which then communicates with as many as 3,000 firewalls, VPN devices or routers at once.

Ponte's nsControl starts at \$50,000 for a pilot test version but could climb to \$4 million for larger companies, Epstein says.

Cisco's Cisco Works 2000

management software performs similar functions to nsControl, but mainly for Cisco gear. And while that might be enough security management capability for big Cisco shops, others see the appeal in centralizing security management across vendor product lines.

At St. Elizabeth's Hospital in Bellevue, Ill., the network operations staff relies on about a half dozen different security databases, says network engineer Donald Woeltje.

"It's a nightmare. We have five such databases, which can drive a person crazy," Woeltje says.

Then again, having just one management tool can give an intruder carte blanche on your network if that tool is compromised, he says. So Woeltje says the ideal number of security management systems to have is two.

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CATALYST PRODUCT POTPOURRI

In addition to the conference proceedings, several vendors will be making announcements at The Burton Group's annual Catalyst Conference this week in San Diego.

Netegrity will explain its strategy to support both Microsoft's .Net and Sun's ONE Web services platforms in an XML-based access control product called TransactionMinder 1.0, slated for release in the first quarter of next year.

According to Jim Dusharme, Netegrity director of development, TransactionMinder is intended to supplement the simpler password-based authentication detailed in the .Net and ONE architectures by adding Netegrity's authorization and policy-based access controls.

Netegrity's existing SiteMinder product for Web-access control already provides such policy-based mechanisms for security.

Netegrity also plans to adhere to industry XML specifications for authorization, such as those under development by the Organization for the Advancement of Structured Information Standards and VeriSign, which earlier this year introduced XML Key Management System for Web Services.

"We're the Switzerland of security," Dusharme says. "We'll work with them all."

iPlanet will introduce products that dovetail with the show's directory and security theme. The iPlanet Directory Server Access Management Edition 5.0, which is slated to ship by year-end, will provide identity management and access control. It also includes a policy engine that will enable single sign-on. In addition, iPlanet will unveil a new metadirectory called Integration Edition 5.0 and the Directory Server Resource Kit for building applications based on the Lightweight Directory Access Protocol (LDAP).

Quest Software will unveil Spotlight for Active Directory, which offers real-time monitoring and diagnostic tools. The monitoring engine is provided through integration with NetPro's Directory Analyzer.

Also at the conference, Oblix will introduce Oblix Publisher 5.0, which lets users within an e-commerce environment search and graphically view resources found within an LDAP directory.

Business Layers will announce that petroleum company Chevron is in the process of deploying one of the largest implementations of e-provisioning software. The software will streamline the allocation of user accounts and access to business applications for 31,000 users. The system is built on Business Layers' Day One software and IBM's SecureWay Directory.

— John Fontana and Ellen Messmer

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Hummingbird package simplifies data sharing

BY JENNIFER MEARS

TORONTO — Hummingbird's Genio Suite data integration platform will soon offer native support for XML to provide near real-time data exchange for companies faced with the challenge of sharing and analyzing data that reside in disparate systems.

Genio Suite 5.0, to be released in August, will natively support XML, meaning XML won't have to be altered into flat files (files that aren't linked or related) and can be immediately shared between systems using messaging protocols.

Now, Genio Suite reads XML as any text file, without processing the XML tags. In Version 5.0, Genio can read the XML structure and easily pull data from within the different XML tags. So, data from XML files will be quickly and easily moved into the integration platform to be shared

with other systems.

"We want to extend the capability of the product to be able to use the e-business environment," says Mathias Evin, product manager at Hummingbird. "More and more people today are realizing that loading data during the night is no longer possible because of the amount of data. What people want to do is refresh data warehousing during the day and use a near-to-real-time mode to directly push the information inside the warehouse."

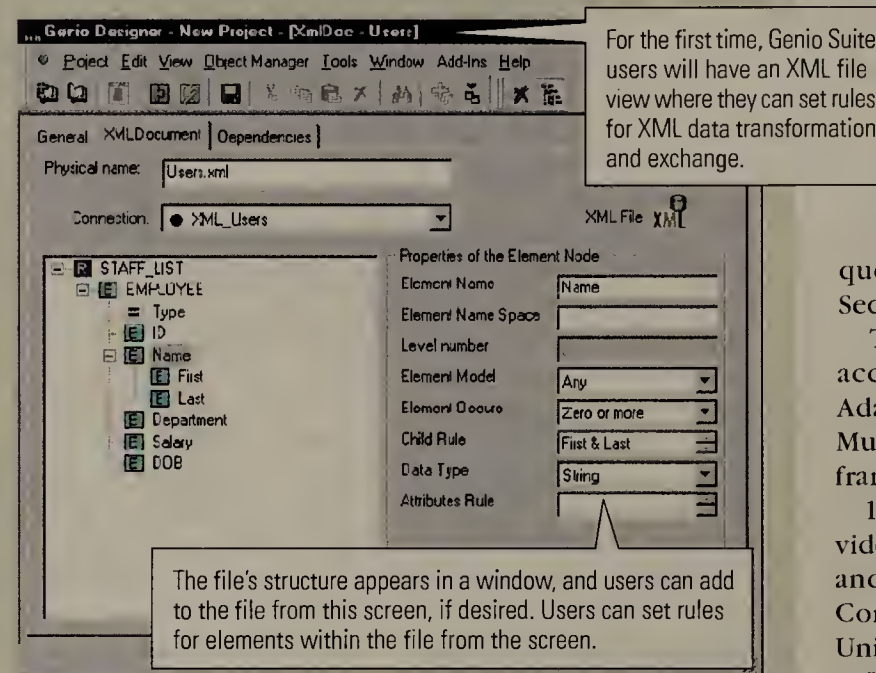
Other updates in Version 5.0 include tighter integration with SAP, Evin says.

"We know that the messaging system is great when you want to process data, but as long as you want to transform the data that is inside the file you can do that with an EAI [Enterprise Application Integration] solution," Evin says.

"Our approach is basically a combination of an ETL [extraction, transformation and load-

XML made easy

Genio Suite 5.0 will give users direct connectivity to XML systems so legacy applications can be easily integrated.



ing] tool and an EAI tool," he adds. ETL refers to the functions needed to pull data out of one database and put them into another.

That puts Hummingbird in competition with other EAI vendors such as IBM and its MQSeries software, which uses message-oriented middleware to integrate platforms. Genio Suite 5.0 will include this messaging technology and its standard database extraction tools.

Len Mori, project manager of infrastructure for Trimac, a trucking company in Canada, says he's looking forward to the XML support because it will simplify sharing data between systems.

Trimac has used Genio Suite for about 18 months to store data from its PeopleSoft financial and human resource applications and an operational trucking system it runs on Sybase in an Oracle data warehouse. Now, users can easily access information from all those systems to analyze things such as loaded miles traveled and gross vehicle weight.

With the XML support, the data sharing will be more efficient, Mori says.

While Trimac has scrapped its mainframe systems, many companies haven't. That's why Hummingbird released Genio Suite 4.7 earlier this month, providing better connectivity with mainframes.

Earlier versions of the Genio Suite could access mainframe data, but the

information had to be transformed into flat files before being exchanged.

Genio Suite 4.7 incorporates technology from database software vendor Strivaria, letting companies access nonrelational data stores such as Virtual Storage Access Method, Keyed Sequence DataSet and Entry Sequence DataSet.

The new version also can access data from AS/400, Adabas V6 and V7 and IBM Multiple Virtual Storage mainframe tape storage.

In addition, Version 4.7 provides support for Oracle 8.1.7 and a new Open Database Connectivity interface for Unix platforms.

However, Version 4.7 does not provide real-time data integration, focusing instead on batch jobs.

Genio Suite 4.7 costs \$50,000 for a Windows NT license and \$75,000 for a Unix license. Connectors for the mainframe systems will run between \$20,000 and \$40,000, Evin says. Connectors to standard databases such as Oracle, Sybase and SQL server are about \$10,000.

Genio is used by companies such as Hewlett-Packard, Virgin Atlantic and Ernst & Young.

Hummingbird: www.hummingbird.com

Envara claims new chip design will ease wireless LAN migration and integration

BY JOHN COX

PALO ALTO — Israeli wireless chip developer Envira this week will unveil a two-chip design that company executives say can broadcast on either the 2.4- or 5-GHz band.

When implemented in wireless LAN access points and interface cards, starting sometime in early 2003, the so-called dual-mode chipset will let network managers smooth the migration from today's proliferating 802.11b wireless LANs, which use 2.4 GHz, to future 802.11a networks, which use 5 GHz.

In addition, client devices, such as laptops and handhelds, outfitted with a dual-mode wireless interface card, will be able to automatically sense whether they are on 11M bit/sec 11b LANs or 54M bit/sec

11a networks.

LAN vendors are reporting fast-growing sales to enterprise customers of 11b wireless LANs. But most of these vendors are expected also to begin shipping, by late this year, 11a LAN products with up to five times the bandwidth of 11b. The two will not interoperate because they use different frequencies and modulation techniques. Network managers will be able to create much denser wireless networks with 11a, supporting more users over the same distance as 11b.

Vendors are struggling to find a migration path for users. A few companies have announced access points with two slots, one for 11b, another for 11a radios.

But all plans currently involve physically swapping out radio cards. And clients will

be limited to one or the other network.

With the Envira chipset, access points could be converted from 11b to 11a without switching hardware, and the same interface card can work on either network.

Envira: www.envira.com

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This week's question:

Cisco finally announced its first acquisition of the year — in July. What's the name of the metro network company Cisco is buying?

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TO QUALIFY: You must supply your company name and address. If military, please specify branch/base. If government, please specify division.

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Company _____

Division/Mail Stop/Military Branch or Base _____

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Business phone (_____) _____

FAX (_____) _____

E-mail address _____

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☐ Check here if you DO NOT wish to receive this information.

If there is a parent company, please provide name: _____

☐ My home address is also my business address.

Optional delivery address: Enter your home address below if your company will not accept delivery at your business address:

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City _____ State _____ Zip _____

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B701

1. What is the principal business activity at your location? (check ONE only)

- | | | |
|---|---|--|
| 01. <input type="checkbox"/> Manufacturing (Non-Computer/ Communications/OEM) | 09. <input type="checkbox"/> Utilities/Process Industries (Mining/Construction/ Petroleum Refining/ Agriculture/Forestry) | 16. <input type="checkbox"/> Manufacturing (Computer/ Communications/OEM) |
| 02. <input type="checkbox"/> Finance/Banking | 10. <input type="checkbox"/> Government/Military | 17. <input type="checkbox"/> Resellers/VARS/VADs/ Integrators/Distributors* (Computers/Communications) |
| 03. <input type="checkbox"/> Insurance/Real Estate/Legal | 11. <input type="checkbox"/> Consulting (Independent) * | 18. <input type="checkbox"/> Other (please specify) _____ |
| 04. <input type="checkbox"/> Health Care Services | 12. <input type="checkbox"/> Education | |
| 05. <input type="checkbox"/> Hospitality/Entertainment/ Recreation | 13. <input type="checkbox"/> Carriers/Voice/Data/ISP | |
| 06. <input type="checkbox"/> Media/TV/Cable/Radio/Print | 14. <input type="checkbox"/> Web Hosting/HSP | |
| 07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services | 15. <input type="checkbox"/> ASP/SPP/MSP | |
| 08. <input type="checkbox"/> Transportation | | |

*Attn Consultants, Integrators, Distributors, Resellers: Please complete form based on ALL clients and your own business needs

2. P: What is your primary job function? (check ONE only) S: What additional job functions are you involved in? (check ALL that apply)

- | | | |
|--|---|--|
| P <input type="checkbox"/> 1. <input type="checkbox"/> Network Management | P <input type="checkbox"/> 4. <input type="checkbox"/> Datacom/Telecom Management | P <input type="checkbox"/> 7. <input type="checkbox"/> Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.) |
| S <input type="checkbox"/> 2. <input type="checkbox"/> CIO/CTO/IS/IT/MIS/ Systems Management | S <input type="checkbox"/> 5. <input type="checkbox"/> Internet/Intranet/Web/ E-Commerce Management | S <input type="checkbox"/> 8. <input type="checkbox"/> Consultant (Independent) |
| S <input type="checkbox"/> 3. <input type="checkbox"/> LAN Management | S <input type="checkbox"/> 6. <input type="checkbox"/> Engineering Management | S <input type="checkbox"/> 9. <input type="checkbox"/> Other (please specify) _____ |

3. What is the estimated value of network equipment and services that you specify, recommend, or approve the purchase of? (Please print the appropriate number code on the line next to each product category. Please complete ALL categories A-O.)

- | | | |
|-----------------------------------|---|---|
| 1. \$100 Million or more | A _____ Large Systems (Mainframes/Minis) | H _____ Internet/Web/E-commerce |
| 2. \$50 Million to \$99.9 Million | B _____ Desktops (Micros/Laptops/ Workstations) | I _____ Intranet/Extranet |
| 3. \$25 Million to \$49.9 Million | C _____ Mobile (including PDAs, Wireless) | J _____ Internetworking (including Routers, Switches) |
| 4. \$10 Million to \$24.9 Million | D _____ Servers | K _____ Storage |
| 5. \$1 Million to \$9.9 Million | E _____ LANs | L _____ Remote Access |
| 6. \$100,000 to \$999,999 | F _____ WAN Equipment | M _____ Peripherals |
| 7. \$50,000 to \$99,999 | G _____ Carrier Services | N _____ Software |
| 8. Under \$50,000 | | O _____ Service/Support Services |
| 9. None of the above | | |

4. What is the total number of sites for which you have purchase influence? (check ONE only)

1. ☐ 100+ 2. ☐ 50 to 99 3. ☐ 20 to 49 4. ☐ 10 to 19 5. ☐ 2 to 9 6. ☐ 1 7. ☐ None

8. Please indicate the Web/Security/LAN/Internetworking/Wireless/Mobile/WAN Equipment/Carrier Services that you are currently involved in purchasing or plan to purchase: (check ALL that apply) A. Currently involved in purchasing B. Plan to purchase

WEB					
A <input type="checkbox"/> 01. <input type="checkbox"/> Web Servers/Software	A <input type="checkbox"/> 04. <input type="checkbox"/> Web Development Tools	A <input type="checkbox"/> 07. <input type="checkbox"/> Web Acceleration/Caching/ Load Balancing			
B <input type="checkbox"/> 02. <input type="checkbox"/> Web Traffic Management	B <input type="checkbox"/> 05. <input type="checkbox"/> Web Content Management	B <input type="checkbox"/> 08. <input type="checkbox"/> Web Hosting Services			
A <input type="checkbox"/> 03. <input type="checkbox"/> Electronic Commerce Tools	A <input type="checkbox"/> 06. <input type="checkbox"/> Web Collaboration/ Groupware	A <input type="checkbox"/> 09. <input type="checkbox"/> Other			
SECURITY					
A <input type="checkbox"/> 10. <input type="checkbox"/> Firewalls	A <input type="checkbox"/> 13. <input type="checkbox"/> DES Encryption Tools	A <input type="checkbox"/> 16. <input type="checkbox"/> Certificate Authorities			
B <input type="checkbox"/> 11. <input type="checkbox"/> Anti-Virus Software	B <input type="checkbox"/> 14. <input type="checkbox"/> Authentication Tools	B <input type="checkbox"/> 17. <input type="checkbox"/> Biometrics			
A <input type="checkbox"/> 12. <input type="checkbox"/> Private Key Encryption Tools	A <input type="checkbox"/> 15. <input type="checkbox"/> Intrusion Detection	A <input type="checkbox"/> 18. <input type="checkbox"/> Other			
LANs/INTERNETWORKING					
A <input type="checkbox"/> 19. <input type="checkbox"/> Fast Ethernet	A <input type="checkbox"/> 26. <input type="checkbox"/> Storage Backup (Optical, Disk, Tape, RAID)	A <input type="checkbox"/> 30. <input type="checkbox"/> Hubs/Intelligent Hubs/ Stackable Hubs			
B <input type="checkbox"/> 20. <input type="checkbox"/> Gigabit Ethernet	B <input type="checkbox"/> 27. <input type="checkbox"/> Network Test/Diagnostic Tools	B <input type="checkbox"/> 31. <input type="checkbox"/> Cables/Connectors, Baluns			
A <input type="checkbox"/> 21. <input type="checkbox"/> Layer 3-7 Switches	A <input type="checkbox"/> 28. <input type="checkbox"/> Uninterruptable Power Supplies (UPS)	A <input type="checkbox"/> 32. <input type="checkbox"/> Wiring/Fiber Systems			
B <input type="checkbox"/> 22. <input type="checkbox"/> ATM Switches	B <input type="checkbox"/> 29. <input type="checkbox"/> Network Interface Cards (NICs, PCMCIA)	B <input type="checkbox"/> 33. <input type="checkbox"/> Net Management Systems			
A <input type="checkbox"/> 23. <input type="checkbox"/> Routers		B <input type="checkbox"/> 34. <input type="checkbox"/> Voice Over IP (VoIP) Tools			
B <input type="checkbox"/> 24. <input type="checkbox"/> Network Attached Storage (NAS)		B <input type="checkbox"/> 35. <input type="checkbox"/> Network Analyzers			
A <input type="checkbox"/> 25. <input type="checkbox"/> Storage Area Networks (SANs)		B <input type="checkbox"/> 36. <input type="checkbox"/> Other Local-Area Network/ Internetworking			
WIRELESS/MOBILE					
A <input type="checkbox"/> 37. <input type="checkbox"/> Wireless LANS	A <input type="checkbox"/> 39. <input type="checkbox"/> Wireless LAN Extension Tools	A <input type="checkbox"/> 41. <input type="checkbox"/> PDAs			
B <input type="checkbox"/> 38. <input type="checkbox"/> Wireless/Cell Phones	B <input type="checkbox"/> 40. <input type="checkbox"/> Mobile Data Equipment/Services	B <input type="checkbox"/> 42. <input type="checkbox"/> Other Remote/Wireless			
WAN EQUIPMENT					
A <input type="checkbox"/> 43. <input type="checkbox"/> Frame Relay Equipment	A <input type="checkbox"/> 48. <input type="checkbox"/> Voice/Video over IP Gateways	A <input type="checkbox"/> 53. <input type="checkbox"/> DSUs/CSUs			
B <input type="checkbox"/> 44. <input type="checkbox"/> Bandwidth Managers	B <input type="checkbox"/> 49. <input type="checkbox"/> Modems	B <input type="checkbox"/> 54. <input type="checkbox"/> PBXs			
A <input type="checkbox"/> 45. <input type="checkbox"/> Bandwidth Shaping/QoS Tools	A <input type="checkbox"/> 50. <input type="checkbox"/> Cable Modems	A <input type="checkbox"/> 55. <input type="checkbox"/> Call Center Tools			
B <input type="checkbox"/> 46. <input type="checkbox"/> VPN Equipment	B <input type="checkbox"/> 51. <input type="checkbox"/> xDSL Products	B <input type="checkbox"/> 56. <input type="checkbox"/> Videoconferencing Gear			
A <input type="checkbox"/> 47. <input type="checkbox"/> ATM Switches	A <input type="checkbox"/> 52. <input type="checkbox"/> Diagnostic/Test Equipment	B <input type="checkbox"/> 57. <input type="checkbox"/> ISDN Equipment/Services			
		B <input type="checkbox"/> 58. <input type="checkbox"/> Other WAN Equipment/Services			
CARRIER SERVICES					
A <input type="checkbox"/> 59. <input type="checkbox"/> Internet Access	A <input type="checkbox"/> 64. <input type="checkbox"/> ATM Services	A <input type="checkbox"/> 69. <input type="checkbox"/> Wavelength Services			
B <input type="checkbox"/> 60. <input type="checkbox"/> Private Lines	B <input type="checkbox"/> 65. <input type="checkbox"/> Managed Services	B <input type="checkbox"/> 70. <input type="checkbox"/> Dark Fiber			
A <input type="checkbox"/> 61. <input type="checkbox"/> Frame Relay Services	A <input type="checkbox"/> 66. <input type="checkbox"/> VPN Services	A <input type="checkbox"/> 71. <input type="checkbox"/> Other Carrier Services			
B <input type="checkbox"/> 62. <input type="checkbox"/> ADSL/DSL	B <input type="checkbox"/> 67. <input type="checkbox"/> LAN-Extension Services				
A <input type="checkbox"/> 63. <input type="checkbox"/> T-1/T-3 Services	A <input type="checkbox"/> 68. <input type="checkbox"/> OC-3/OC-12				
		None of the above (1 - 71) <input type="checkbox"/> 72. <input type="checkbox"/>			

9. Please indicate the Systems/Peripherals/Software/Applications/Business Services that you are currently involved in purchasing or plan to purchase: (check ALL that apply) A. Currently involved in purchasing B. Plan to purchase

SYSTEMS/PERIPHERALS					
A <input type="checkbox"/> 01. <input type="checkbox"/> Laptops/Notebooks	A <input type="checkbox"/> 06. <input type="checkbox"/> Fax Servers	A <input type="checkbox"/> 10. <input type="checkbox"/> Mainframes			
B <input type="checkbox"/> 02. <input type="checkbox"/> Desktops	B <input type="checkbox"/> 07. <input type="checkbox"/> Remote Access Servers	B <input type="checkbox"/> 11. <input type="checkbox"/> Printers			
A <input type="checkbox"/> 03. <input type="checkbox"/> Intel-Based Servers	A <input type="checkbox"/> 08. <input type="checkbox"/> Video Servers	B <input type="checkbox"/> 12. <input type="checkbox"/> Enclosures/Racks/Furniture			
B <input type="checkbox"/> 04. <input type="checkbox"/> Risc-Based Servers	B <input type="checkbox"/> 09. <input type="checkbox"/> Mid-Range Systems (including workstations)	B <input type="checkbox"/> 13. <input type="checkbox"/> Other Computers/ Peripherals			
A <input type="checkbox"/> 05. <input type="checkbox"/> Print Servers					
SOFTWARE/APPLICATIONS					
A <input type="checkbox"/> 14. <input type="checkbox"/> Desktop/Server Operating Systems	A <input type="checkbox"/> 20. <input type="checkbox"/> Database Management Systems	A <input type="checkbox"/> 25. <input type="checkbox"/> Middleware			
B <input type="checkbox"/> 15. <input type="checkbox"/> Network Management	B <input type="checkbox"/> 21. <input type="checkbox"/> Customer Resource Management (CRM)	B <input type="checkbox"/> 26. <input type="checkbox"/> Document Management Tools			
A <input type="checkbox"/> 16. <input type="checkbox"/> Systems Management	A <input type="checkbox"/> 22. <input type="checkbox"/> Enterprise Resource Planning (ERP)	B <input type="checkbox"/> 27. <input type="checkbox"/> Site Metering Tools			
B <input type="checkbox"/> 17. <input type="checkbox"/> Directory Services	B <input type="checkbox"/> 23. <input type="checkbox"/> XML Tools	B <input type="checkbox"/> 28. <input type="checkbox"/> Software Distribution Tools			
A <input type="checkbox"/> 18. <input type="checkbox"/> E-Mail	A <input type="checkbox"/> 24. <input type="checkbox"/> Desktop Videoconferencing	B <input type="checkbox"/> 29. <input type="checkbox"/> Data Warehousing			
B <input type="checkbox"/> 19. <input type="checkbox"/> Groupware		B <input type="checkbox"/> 30. <input type="checkbox"/> Applications Development Tools			
		B <input type="checkbox"/> 31. <input type="checkbox"/> Other Software/Applications			
BUSINESS SERVICES					
A <input type="checkbox"/> 32. <input type="checkbox"/> Application Service Provider Services	A <input type="checkbox"/> 33. <input type="checkbox"/> Systems Integration/ Consulting	A <input type="checkbox"/> 35. <input type="checkbox"/> Other Services			
B <input type="checkbox"/> 34. <input type="checkbox"/> Education/Training Services		None of the above (1 - 35) <input type="checkbox"/> 36. <input type="checkbox"/>			

10. Please indicate the platforms that are currently installed/planned: (check ALL that apply) A. Currently installed B. Planned for purchase

NETWORK PROTOCOLS					
A <input type="checkbox"/> 01. <input type="checkbox"/> TCP/IP v4	A <input type="checkbox"/> 03. <input type="checkbox"/> SNA/APPC/APPN/LU6.2	A <input type="checkbox"/> 05. <input type="checkbox"/> NETBIOS/NETBUEI			
B <input type="checkbox"/> 02. <input type="checkbox"/> TCP/IP v6	B <input type="checkbox"/> 04. <input type="checkbox"/> Novell IPX/SPX	B <input type="checkbox"/> 06. <input type="checkbox"/> NFS			
		B <input type="checkbox"/> 07. <input type="checkbox"/> Other Network Protocols			
LAN/WAN ENVIRONMENT					
A <input type="checkbox"/> 08. <input type="checkbox"/> Gigabit Ethernet	A <input type="checkbox"/> 13. <input type="checkbox"/> Token Ring/Token Ring Switching	A <input type="checkbox"/> 18. <input type="checkbox"/> DSL			
B <input type="checkbox"/> 09. <input type="checkbox"/> Switched Ethernet	B <input type="checkbox"/> 14. <input type="checkbox"/> Layer 3-7 Switching	B <input type="checkbox"/> 19. <input type="checkbox"/> ISDN			
A <input type="checkbox"/> 10. <input type="checkbox"/> Fast Ethernet	A <input type="checkbox"/> 15. <input type="checkbox"/> FDDI	B <input type="checkbox"/> 20. <input type="checkbox"/> Frame Relay			
B <input type="checkbox"/> 11. <input type="checkbox"/> Ethernet	B <input type="checkbox"/> 16. <input type="checkbox"/> Fibre Channel	B <input type="checkbox"/> 21. <input type="checkbox"/> Private Line T1, T3, OC-3, OC-12			
A <input type="checkbox"/> 12. <input type="checkbox"/> ATM	A <input type="checkbox"/> 17. <input type="checkbox"/> Wireless LANs	B <input type="checkbox"/> 22. <input type="checkbox"/> Other LAN/WAN Environment			
DESKTOP/SERVER OPERATING SYSTEMS					
A <input type="checkbox"/> 23. <input type="checkbox"/> Windows 2000	A <input type="checkbox"/> 28. <input type="checkbox"/> Intel Based UNIX	A <input type="checkbox"/> 34. <input type="checkbox"/> Palm OS			
B <input type="checkbox"/> 24. <input type="checkbox"/> Windows 95/98	B <input type="checkbox"/> 29. <input type="checkbox"/> RISC Based UNIX (incl. SOLARIS)	B <input type="checkbox"/> 35. <input type="checkbox"/> Windows CE			
A <input type="checkbox"/> 25. <input type="checkbox"/> Windows NT/Windows 2000	A <input type="checkbox"/> 30. <input type="checkbox"/> IBM MVS/VM/VSE/ESA	B <input type="checkbox"/> 36. <input type="checkbox"/> Other Network Operating System			
B <input type="checkbox"/> 26. <input type="checkbox"/> Novell (NetWare 5.X, 4.X, 3.X, 2.X)	B <input type="checkbox"/> 31. <input type="checkbox"/> OS/400				
A <input type="checkbox"/> 27. <input type="checkbox"/> LINUX	B <input type="checkbox"/> 32. <input type="checkbox"/> Digital VMS	None of the above (1 - 36) <input type="checkbox"/> 37. <input type="checkbox"/>			
	B <input type="checkbox"/> 33. <input type="checkbox"/> Macintosh				

Continued on next page...

Continued from page one...

5. What is the total number of Servers/Clients installed/planned at your location/in your entire organization? (check ONE box in each column)

SERVERS		CLIENTS	
At Location	Entire Org.	At Location	Entire Org.
A	B	C	D
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. None	<input type="checkbox"/>	<input type="checkbox"/> 8. None	<input type="checkbox"/>

6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check ONE only)	B. Involvement (check ALL that apply)
CORPORATE/ENTERPRISE:	
1. <input type="checkbox"/> Entire Enterprise/ Multiple Enterprises	1. <input type="checkbox"/> Create Network/IT Strategy
2. <input type="checkbox"/> Multinational Enterprise	2. <input type="checkbox"/> Recommend/Specify Brand
3. <input type="checkbox"/> Division/Multiple Divisions	3. <input type="checkbox"/> Approve Purchase
4. <input type="checkbox"/> Department	4. <input type="checkbox"/> Evaluate Products/Services
5. <input type="checkbox"/> None	5. <input type="checkbox"/> Determine the Need
	6. <input type="checkbox"/> None

7. What is the estimated number of employees in your entire organization/at your location? (check ONE in each section)

A. Entire organization:	B. At your location:
1. <input type="checkbox"/> Over 20,000	1. <input type="checkbox"/> Over 20,000
2. <input type="checkbox"/> 10,000 - 19,999	2. <input type="checkbox"/> 10,000 - 19,999
3. <input type="checkbox"/> 5,000 - 9,999	3. <input type="checkbox"/> 5,000 - 9,999
4. <input type="checkbox"/> 2,500 - 4,999	4. <input type="checkbox"/> 2,500 - 4,999
5. <input type="checkbox"/> 1,000 - 2,499	5. <input type="checkbox"/> 1,000 - 2,499
6. <input type="checkbox"/> 500 - 999	6. <input type="checkbox"/> 500 - 999
7. <input type="checkbox"/> 250 - 499	7. <input type="checkbox"/> 250 - 499
8. <input type="checkbox"/> 100 - 249	8. <input type="checkbox"/> 100 - 249
9. <input type="checkbox"/> 99 or less	9. <input type="checkbox"/> 99 or less

11. Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Servers	B - Workstations/Desktops/Laptops
1. <input type="checkbox"/> IBM (Mainframes)	1. <input type="checkbox"/> Sun Microsystems
2. <input type="checkbox"/> IBM RS/6000	2. <input type="checkbox"/> H-P
3. <input type="checkbox"/> IBM AS/400	3. <input type="checkbox"/> Compaq/Digital
4. <input type="checkbox"/> Compaq/Digital/Tandem	4. <input type="checkbox"/> IBM
5. <input type="checkbox"/> Unisys	5. <input type="checkbox"/> Dell
6. <input type="checkbox"/> H-P	6. <input type="checkbox"/> Gateway
7. <input type="checkbox"/> Other	7. <input type="checkbox"/> Fujitsu
	8. <input type="checkbox"/> Other

12. What is the estimated gross revenue of your entire company/institution? (check ONE only)

1. <input type="checkbox"/> \$20 Billion or More	5. <input type="checkbox"/> \$100 Million to \$499.9 Million	9. <input type="checkbox"/> \$4.9 Million or Less
2. <input type="checkbox"/> \$10 Billion to \$19.9 Billion	6. <input type="checkbox"/> \$50 Million to \$99.9 Million	10. <input type="checkbox"/> None of the above
3. <input type="checkbox"/> \$1 Billion to \$9.9 Billion	7. <input type="checkbox"/> \$10 Million to \$49.9 Million	
4. <input type="checkbox"/> \$500 Million to \$999.9 Million	8. <input type="checkbox"/> \$5 Million to \$9.9 Million	

13. For which areas outside of the U.S.A. do you have purchase influence? (check ALL that apply)

1. <input type="checkbox"/> Europe	3. <input type="checkbox"/> South America	5. <input type="checkbox"/> Middle East	7. <input type="checkbox"/> Canada
2. <input type="checkbox"/> Asia	4. <input type="checkbox"/> Australia	6. <input type="checkbox"/> Africa	8. <input type="checkbox"/> None

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Infrastructure

TCP/IP, LAN/WAN Switches, Routers, Hubs, Access Devices, Clients, Servers, Operating Systems, VPNs, Networked Storage

Briefs

Cabletron last week sold its network infrastructure consulting unit, **GlobalNetwork Technology Services**, to a private company, current GNTS executives and two Cabletron subsidiaries. GNTS' business ranges from network analysis and design to out-sourced network implementation and management. The sale of GNTS is the latest in a series of spinoffs that will see each of Cabletron's component companies become independent and the parent company fold on Aug. 6. The outsourcing business of GNTS, along with parts of its implementation and installation practice, are being acquired by a group of GNTS executives along with a private firm Cabletron did not name. The company's consulting and network management practices for small companies are being acquired by two other Cabletron companies: enterprise network equipment vendor Enterasys and Aprisma, which sells the Spectrum network management software originally developed by Cabletron.

Cabletron: www.cabletron.com; GNTS: www.globalnts.net

Compaq last week took the first step toward revamping its high-end server line, releasing a 64-bit system based on Intel's Itanium processor. Compaq will begin shipping the ProLiant DL590/64 this quarter with up to four 800-MHz Itanium processors. The new server currently supports Microsoft's 64-bit Windows Advanced Server, Limited Edition and flavors of Linux from Red Hat and SuSE Linux AG. A two-way, 1G-byte DL590/64 will start at \$23,000 with worldwide availability, according to Compaq. Compaq plans to abandon its Alpha-based products by 2004, moving all its servers onto the Itanium platform.

Compaq: www.compaq.com

Check Point CEO marks milestone

Schwed sees company's VPN gateways selling well, but challenges lie ahead.



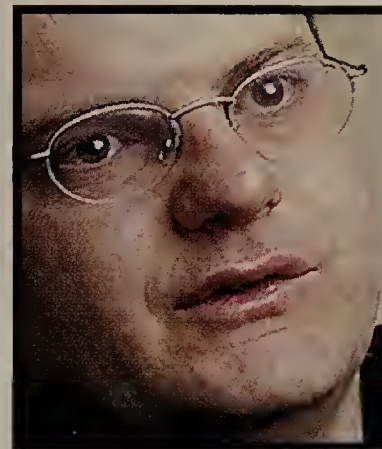
Check Point Software recently announced that 100,000 of its software VPN gateways have been sold and that an overhauled version of its VPN-1/Firewall-1 software, called NG for Next Generation, is shipping (www.nwfusion.com, DocFinder: 5139). CEO Gil Shwed last week spoke with Network World Senior Editor Tim Greene about the company, VPNs and the tight economy.

Your revenues have gone from \$141 million in 1998, to \$219 million in 1999, to \$425 million in 2000, but Check Point issued an advisory recently that sales might not meet Wall Street expectations. What's going on there?

We said the environment is tough and we've been saying that for quite a few months. That will be felt in soft revenues, again, not bad revenues. [We'll have] amazing revenues with more than 50% growth over last year and so on, but still, compared to some expectations, a little bit on the low side.

This is an uncertain time for users as well. What is the compelling reason to go ahead with installing a firewall and VPN even if a company has a shrinking IT budget?

Security is a must-have, and you don't want to compromise over it. The other reason is cost cutting. So if you just say 'OK I want to move just my top users to a VPN-based remote access,' you can usual-



ly pay [for] a new firewall and VPN from Check Point within a month or two even without migrating the full environment. I'm not talking about making radical changes overnight, which is obviously always risky, but making small changes, like moving 100 users, then 500 users, from dial-up remote access to VPN access.

Service providers have reined back their spending. How are you faring with them?

The interest is there. The spending is there, too, but not at the level we have expected. They used to represent close to 20% of our business. I would tend to See **Schwed**, page 20

Compaq offers 'on demand' computing services

BY GEORGE CHIDI

Compaq last week announced a change in its sales strategy, pushing services to large corporate customers in a move to emphasize that it does more than make hardware.

Compaq will tie installation and technical support services to its hardware sales of PCs, servers, storage and handheld devices. Calling the initiative Computing on Demand, Compaq plans to offer customers computing services as a utility cost, like a water bill, according to a company news release. The initiative is intended to let customers focus on their core businesses while outsourcing IT requirements to Compaq.

Computing on Demand includes Capacity on Demand, Server on Demand and Storage on Demand. Customers can reserve PC, server and storage capacity, and Compaq will release the computing power as needed.

Under the Capacity on Demand program, Compaq will install reserve computing power for customers using AlphaServer and NonStop Himalaya

servers. The server capacity can be put into service immediately on request and paid for as it is used. Server on Demand will extend the plan to the company's ProLiant server line in the third quarter. The plan includes flexible financing options, as well as a pay-per-unit computing model based on application usage.

Compaq's Access Utility is a package of hardware and services with options that can be customized, according to the company. It offers four desktop or portable configurations using Windows 2000 Professional and Office XP software, along with help center support, installation, program management, asset reporting and a technology upgrade every three years.

Optional services that can be added include asset recovery, backups, system restoration, desk-side support, data migration, custom image loading and enhanced hardware support.

The initiative's effect is similar to the application service provider business model.

The Storage on Demand and Compaq

Private Storage Utility programs perform the same kind of service function as the other on-demand programs, letting customers meet unanticipated storage requirements by purchasing additional capacity on a "pay-as-you-grow" basis, the company says.

Chidi is a correspondent with IDG News Services' Boston bureau.

www.nwfusion.com

ITANIUM SERVER

Read about Compaq's ProLiant DL590/64 — set to begin shipping this quarter — and check out our vendor profile with links to the latest Compaq news.



find it 5145 online



Tolly on Technology . Kevin Tolly

METROPOLITAN-AREA MAGIC?

A aahhh, the new packet metropolitan-area network — a panacea if ever there was one. It brings the “Ethernet solves everything” proposition to the metropolitan area. According to one service provider, you can simply pick your speed — from 1M to 1,000M bit/sec, sign on the dotted line, get handed an RJ-45 interface and, voilà, “optical dial tone.”

Putting aside the awkward question of how a copper interface delivers optical anything, let's explore the more important question, which is, how do they deliver services? Without the benefit of ATM or circuits of any kind, it looks a little bit like magic — black magic.

So, here are some questions to ask potential service providers to make them earn their keep and keep them honest:

Bandwidth definition: You've signed up for 50M bit/sec service on a Fast Ethernet port that will accept data at twice that rate (and cannot be “clocked” to a lower speed). Does that

mean you get 50M bit/sec, on average, over every second? (That would mean a half-second burst at full-line rate followed by an equal-length pause would be deemed acceptable.) Or is your 50M bit/sec of throughput calculated differently? This is the most important question you can ask your prospective MAN service provider. While you might only think of it as buying “50M bit/sec” bandwidth, it is really 50M bit/sec per second per “X” unit of time.

The difference between having a 50M bit service delivery averaged over a second (or fraction thereof), a minute, a day or a week has a major impact on the actual bandwidth you have available when you need it. And, don't forget, they can't weasel out of this question. If service providers can't define the time element, they can't define the service. Time is the sine qua non of this bandwidth equation.

Bandwidth policing: To be sure, surges exceeding your allocated bandwidth will occur — and might occur with some frequency. What will your

service provider do with the excess traffic that enters the pipe? (Hint: The answer is “discard.”)

While the rep might go on about queues and priorities, remember that LAN switches are NOT traffic shapers. Yes, they do have queues — but, in general, not very deep ones.

When LAN switches come under siege, they do a quick triage-and-trash. They discard the packets they are unable to forward. Don't forget that even a relatively minuscule amount of packet loss can have a devastating impact on end-user response time as the affected sessions freeze waiting for the packets that never come and then attempting to recover the wounded sessions.

Cross-customer bandwidth policing: Ultimately, your packets will travel over your service provider's MAN infrastructure interleaved among those of other MAN customers. Given that your service provider's switches, at best, have eight hardware queues, how do they control and allocate band-

width for, say, 88 customers? Do they groom seven and let all the rest get dumped into the eighth queue?

Granular Bandwidth Control: Inside any company's logical pipes, all traffic usually is not created equal. Suppose you have four classes of traffic (control, delay sensitive, transactions and file transfer) that must receive the appropriate relative priorities. If all your traffic is mapped into one queue across your service provider's MAN, how will you handle class of service?

Service-level agreement management: How will your service provider report to you? What will you know about peaks and averages, as well as the packet discard rates and latency of the service provider's network?

And make sure they prove their answers. Mere claims count for nothing.

Tolly is chairman and CEO of Tolly Research. Tolly also is founder, president and CEO of The Tolly Group. He can be reached at ktolly@tolly.com.

PowerQuest software eases workstation administration

BY DENI CONNOR

OREM, UTAH — Storage management tools company PowerQuest has pumped up its workstation management software, which lets network professionals save time by helping install applications on user workstations, migrate boxes to a different operating system when needed and retire PCs when they are no longer needed.

Introduced last week, PowerDeploy Suite 2.0 lets administrators create and install copies or images of workstation hard drives, or partitions to remote workstations or stand-alone PCs. It also uses preboot execution (PXE) and Wake-on-LAN technologies to install new systems without having to physically visit them. PXE is part of Intel's Wired for Management Program, which gives computers the ability to boot to the network without physically visiting the PC to boot it. Wake-On-LAN is an IBM technology that lets a network manager turn

on a PC remotely.

PowerDeploy can install applications to multiple systems simultaneously. The software will be particularly helpful as network managers get ready to deploy Windows XP or upgrade Windows NT, 95 or 98 PCs to Windows 2000.

Mark Rees, senior systems engineer for a large retailer in Utah, has a mixed NT/NetWare environment. He uses PowerDeploy Suite to manage workstation management on his NT networks, and because PowerDeploy Suite works on NT and Win 2000 only, he also uses Novell's ZENworks for Desktops to manage application installation on his NetWare and Windows workstations.

“We use parts of PowerDeploy Suite such as its DeltaDeploy, which lets you capture installations automatically and create an image for a workstation, to send configurations to ZENworks for Desktops,” Rees says. “In most cases, we build the application installation packages with PowerDeploy Suite and then automatically

distribute and install them locally and remotely with ZENworks for Desktops.” DeltaDeploy automates software distribution, installation and configuration across the network and Internet.

PowerDeploy Suite includes a Web-based management console that lets customers create, schedule and execute image deployment and restoration damaged systems to their previous software status.

PowerDeploy Suite manages workstations on NT and Win 2000 networks and competes with software packages such as Altiris' Migration Toolkit and Symantec's Ghost Corporate Edition. The system provides information on the execution of tasks and will alert administrators by e-mail when tasks are completed.

The suite also includes software that lets users migrate to new operating systems without losing personal settings, thus saving time. It also includes software that lets network managers safely erase hard disks.

PowerDeploy Suite is also integrated with Intel's LAN-Desk Management Suite, which lets network managers take an inventory workstations to determine if they have the correct configuration

for deployment.

PowerDeploy Suite 2.0 will be available this month for \$1,980 for 100 client workstations.

PowerQuest: www.powerquest.com

Schwed,
continued from page 19

say it will shrink down closer to 10%.

Everybody talks about convergence of voice and data. Are the internal quality-of-service mechanisms in your VPN-1/Firewall-1 NG product sufficient to support voice?

The [internal mechanisms] are sufficient for that. With NG, the [internal mechanisms] can be translated to Diff-Serv instructions. So you can have your policy propagate through the ISP network if the ISP supports that.

Many people are looking to MPLS-based VPNs. Is that a threat to Check Point, which is

not based on MPLS?

There's a lot of confusion about the difference between an MPLS network and IPsec or secure VPNs. MPLS is much more how to route traffic effectively through IP networks. What we call an IPsec VPN is much more about how do you make sure this data is secure when it crosses the line. It just gives you a much broader set of requirements than just relaying the traffic over an IP network. MPLS doesn't give you much security. It doesn't encrypt the traffic, it doesn't authenticate it. It doesn't enforce a policy. It just gives you a very good way to route your traffic over a very big IP network. That's very complementary to IPsec-based VPNs. ■



Net.Worker

Products, services and strategies for tying teleworkers to the enterprise

Briefs

WildBlue Communications last week announced it would use **Mentat's SkyX Gateway** technology — which helps overcome the speed limits of TCP/IP when used over satellite — to help achieve up to 3M bit/sec download speeds over its upcoming two-way fixed satellite network. Expected to launch in early 2002, WildBlue employs next-generation Ka-band (20 to 30 GHz) technology.

WildBlue: www.wildblue.com;
Mentat: www.mentat.com

As part of its eBusiness initiative, **Computer Associates** recently teamed with **Research in Motion** to extend CA's Unicenter to include the BlackBerry Enterprise Server. IT managers can track BlackBerry handhelds like any other IT asset, as well as use BlackBerry devices to help manage their nets while on the road.

CA: www.ca.com; BlackBerry: www.blackberry.net

One way that home workers can cut costs and avoid network hassles is to share one PC between two users. Although the keyboard, video, mouse switch is an old idea in corporate networks, **Iogear** is making a play for the home with ShareView 3.1. The kit includes a VGA card to share the monitor, keyboard, and 15-inch USB/VGA cable and costs \$200.

Iogear: www.iogear.com

PX Technologies recently released **Wintility Pro**, a software utility that helps workgroups organize, manage and share documents and e-mail messages. The program gives network managers control over document management and access. The product costs \$250. Next month, PX Technology is expected to release **WebWintility**, a remote-access version.

Wintility: www.wintility.com

Cat 5 vs. wireless: Pros and cons

When your teleworkers need a home network, be wary of cost and security.

BY STEVE JANSS

The results of last month's meeting weren't good: Your teleworkers wanted multiple network jacks for their families' computers. Your IS staff specified Category 5 for everything. But hardwiring your teleworkers' homes would have broken your budget.

So you thought 802.11b wireless might be a good solution. At 11M bit/sec, 802.11b's 2.4-GHz spread spectrum approach offers reasonable throughput, and its Wired Equivalent Privacy (WEP) seems to satisfy the security requirements. But after your trial rollout, your teleworkers were grumbling about speed — about six times slower than Cat 5 for LAN throughput — and your IS staff was grumbling about WEP's security.

The boss wants details, but every Internet resource you find is heavily biased. Some tout WEP as the security solution it was designed to be, and others, such as Berkeley in a recent report, claim the design has "significant security flaws."

This story compares the strengths and weakness of 802.11b wireless and Cat 5 by looking at two teleworkers.

John is a family man with a wife and three children. He has a company-provided workstation and asymmetric DSL (ADSL) connection. His wife and son have their own computers and want to access the Internet over the ADSL connection. As a video-effects guru, John needs lots of storage, as well as throughput between his workstation and the network-attached storage unit in his wiring closet.

Cindy is a claims processor. Her storage requirements are modest, and she needs iron-clad security due to the sensitive data in her files. Her firm has installed a secure VPN. Her family of three also wants to share her LAN and Internet access.

Assessing the costs

While Cat 5 installation costs vary considerably, a three-jack installation can cost about \$450 for materials and \$400 for labor. By comparison, the costs for wireless stop after you've installed and configured the wireless access point and the network interface card (NIC). For example, LinkSys' WAP11 lets you tap into existing Ethernet LANs for \$99.95, plus an additional \$40.26 per NIC (\$98.95 per PC Card NIC).

Even though the cost for the wireless



hardware is approximately \$100 more than the Cat-5 hardware, you save almost \$300 on labor.

Comparative analysis

So wireless is the way to go, right? Not so fast. Cat 5's 100M bit/sec puts 802.11b's 11M bit/sec to shame. Wireless may work fine for Cindy, but John's video applications need some speed.

Also, the biggest problem with wireless is security. Numerous security experts have recently detailed WEP's "significant design flaws" that let any determined hacker gain access, regardless of the chosen key length. If your teleworker is accessing sensitive data, ensure that you're using a unit with 128-bit key, enable authentication and encryption, and encapsulate your data via a proven VPN.

Fortunately, some wireless systems, such as those from 3Com and Cisco, are leaping ahead of the standards and including tunneling, IP Security and centralized key management in their wireless products. Both vendors also provide Remote Authentication Dial-In User Service applications.

If you're mixing vendors, make sure they all have the Wireless Fidelity (Wi-Fi) logo. Wi-Fi is the interoperability certification granted by the Wireless Ethernet Compatibility Alliance. Products with this logo are certified to work with other Wi-Fi products.

Because the level of interoperability is limited to the 802.11b standard, however, Wi-Fi doesn't cover any of the desired security enhancements, such as interoperability, while using 128-bit keys.

Wireless may be inexpensive and convenient, but it's neither fast nor particularly secure. Until WEP undergoes some needed improvements, we recommend you consider any 802.11b wireless LAN as potentially vulnerable, and use a firewall between it and your corporate network.

Cat 5 caveats

However, before you start installing Cat 5 cable in your teleworker's home, check your local building codes. Most specify that plenum-rated cable is a must for all dwellings. Be sure you seal the holes you drilled through the fire stops with foam sealant, too. When laying cables, keep them at least 18 inches away from electrical wiring to avoid throughput-robbing interference.

If you think your teleworker really needs Cat 5e, go ahead and splurge. Keep in mind, though, that 100M bit/sec is at least 60 times faster than the uplink — the Cat 5 won't become a bottleneck for several years.

As for differences between 568A and 568B, remember that the 568B wiring scheme uses the following pinouts (1-8): W/O-O, W/G-BI, W/BI-G, W/Br-Br. Because this is the standard for Cat 5 patch cables, going with 568B patch panels and RJ-45 jacks will save you time because you can't mix the two.

Back to John and Cindy

The throughput John needs for his massive video files clearly dictate Cat 5. Without a good VPN, Cindy would need Cat 5 for its security. But because her data is safely encapsulated by the VPN before traveling over wireless, Cindy's firm chose a wireless solution for her home office.

Next story: Peripheral vision — printers, faxes, scanners, multifunction devices and more.

Janss is the president of Jansys Information Systems, a consulting firm specializing in IS technologies for small businesses. He can be reached at biz-com@jansys.com.

www.nwfusion.com

GEAR FOR TELEWORKERS

Read Part 6 in our Teleworking Top 10 series and find out how to make the most of your limited computing resources.





We've made the Windows 2000 platform more manageable than ever. For obvious reasons. Clearly, you have a lot on your mind these days. But now there's help: Microsoft® Windows® 2000-based management solutions are designed to simplify your workload. Companies such as Data Return, Eaton Corporation, and Northrop Grumman Corporation, working with service partners such as Compaq, are using these solutions today. As a result, they're realizing reduced IT management costs, higher profitability, and increased customer satisfaction. For more information on how to better manage your Windows-based infrastructure, visit microsoft.com/business **Software for the Agile Business.**



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Carriers & ISPs

**The Internet, Extranets, Interexchange
and Local Carriers, Wireless, Regulatory Affairs**

Briefs

Beleaguered Web hosting firm **Exodus Communications**, which last month lowered its revenue projections for the rest of the year as it struggles to make the move from collocation to managed services, has a new chief of finance.

Last week the company announced William Austin would take over as CFO. He replaces Dick Stoltz, who has been the company's interim CFO since May. Stoltz will stay on in an advisory role. Austin comes from BMC Software in Houston, where he was senior vice president and CFO.

Exodus: www.exodus.com

Canadian business customers will soon be able to purchase the same Sprint Web hosting services offered in the U.S. Sprint Canada, a wholly owned subsidiary of Call-Net Enterprises and Sprint, announced last week that it will sell Sprint e-Solutions services, including Web and application hosting, e-commerce consulting and managed security offerings throughout Canada. The services are expected to be available by the end of the third quarter.

Sprint Canada: www.sprint-canada.ca; Sprint: www.sprint.com; Call-Net: www.callnet.ca

Sprint last week made its Sprint Business DSL service available in seven new markets, bringing the total number of markets served to 29.

The new markets are Charlotte, N.C.; Cincinnati; Columbus, Ohio; New York; Philadelphia; Tampa, Fla.; and Washington, D.C. Sprint offers a 45-day installation guarantee, and 99.9% network performance and 90-day satisfaction guarantees with the service.

Sprint: www.sprint.com

ISP group at vortex of IPv6 transition

President of American Registry for Internet Numbers sees a 5-to-10-year supply of IPv4 addresses.



The American Registry for Internet Numbers, a 3-year-old nonprofit run by the ISP

industry, is a behind-the-scenes player in some of the hottest debates among Internet policy-makers. Responsible for assigning blocks of Internet addresses to companies operating in North and South America, ARIN has an interesting perspective on the depletion of addresses for IPv4, the current version of the Internet protocol, as well as demand for IPv6, its long-delayed replacement. ARIN Presi-

dent Ray Plzak sat down recently with Network World Senior Editor Carolyn Duffy Marsan to discuss IPv4/IPv6 transition and other issues facing ARIN.

When did you join ARIN and what was your background?

I took over as president in September of 2000. Before that I was an assistant vice president with Science Applications International. I was the operations manager for the Defense Department's Network Information Center, which includes the .mil domain and the delegation of IP addresses.



Who are ARIN's members and how does it operate?

ARIN has a staff of 32 in Chantilly, Va. We have 1,430 members, mostly ISPs. They pay us an annual fee depending on the amount of Internet address space they require. The fees are \$2,500, \$5,000, \$10,000 or \$20,000. We also have a couple of hundred corporate end users who pay us a one-time fee to get a large block of address space. A corporate end user can become a member of ARIN for \$500 per year.

We have a board of trustees that is nominated and elected by the members. The board is six individuals —

See **Plzak**, page 26

CoreExpress shifts gears in wake of layoffs

Company banking on new partnerships to boost Extranet service.

BY TIM GREENE

ST. LOUIS — After a major restructuring that involved laying off 250 of its 350 employees, CoreExpress will forge ahead with an alliance program to couple partners' equipment and services with its main line of business: guaranteeing fast IP networking using conventional Internet access.

The first alliance partner will be Sitara Networks, which makes hardware to shape traffic as it passes from companies into service provider networks. In combination with a CoreExpress service called Extranet, Sitara's gear can speed IP connections to a below-150-msec delay, links that otherwise might be bogged down by congestion at WAN routers and on the Internet, CoreExpress says.

Other partners to be announced over the next month include remote storage providers and application service providers, the company says.

In the case of Sitara, salespeople from Sitara and CoreExpress will be trained in the other's products. When they make sales calls, they will identify customers that might benefit from also

PROFILE: CORE EXPRESS

Location:	St. Louis
Founded:	2000
Service:	CoreExpress Extranet, fast IP backbone service linking major ISPs.
Founders:	Michael Gaddis, former CEO; David Barmann, current CEO.
Financing:	\$231 million Benchmark Capital, Morgan Stanley Dean Witter, others; \$464 million in vendor financing.
Employees:	100 (down from 350)
Competitors:	AT&T, WorldCom, other Tier 1 ISPs.

buying services or equipment from the other. The objective is to expand their salesforces and to give customers more options, says Joe Croft, vice president of channel marketing for CoreExpress.

CoreExpress connects its nine points of presence to the access networks of four major ISPs: AT&T, Genu-

ity, Sprint and UUNET. Traffic from CoreExpress customers is gathered from the ISP access networks at the POPs and run across the CoreExpress fiber-optic backbone to the POP nearest the destination address. At the POP, the traffic is dropped back on the customers' ISP access network and travels to the destination.

The advantage is that user traffic never crosses the Internet backbone; it all rides on the CoreExpress backbone, which is engineered to minimize delay. Before signing up a customer, CoreExpress measures the delay between customer sites and the nearest CoreExpress POP to make sure that link is fast enough to support a sub-150-msec delay. If it is, CoreExpress offers a service-level agreement (SLA) for end-to-end delay. If the delay is too great to support the 150-msec SLA, CoreExpress won't turn up the service.

CoreExpress recently announced layoffs and said it is abandoning its secondary wholesale bandwidth business to focus on Extranet. Profit margins on selling bulk bandwidth were too low to warrant the drain on company finances,

See **CoreExpress**, page 26



Eye on the carriers . Lisa Pierce

THE ABCs OF PREPARING THOROUGH RFPs

Is it wise to submit requests for proposal?

To quote a client of mine: "If I renegotiate a contract without going through the RFP process, I'll save 10% compared to what I currently pay. But if I issue an RFP, I'll save 40%."

The quality of the RFP is important, of course. I've never seen a case in which a provider's response to an RFP was of the same quality, or better, than the quality exhibited in the customer's RFP. Hastily compiled RFPs also require customers to spend an inordinate amount of time gathering and evaluating follow-up information from bidders.

Key RFP elements for a WAN include the following:

- The customer should create a statement of values. For instance: Does the customer rate network performance over provider responsiveness or availability over price? In concert with key user departments, the WAN team should develop a consensus and weigh the factors — totaling up to 100%. This is the most important element of the RFP process

because it will provide customers with critical information to determine how many of its values are shared by various bidders. Waiting to discuss this until the contract-negotiation stage is far too late.

- The RFP should describe the customer's network and applications — the number of sites, current configurations (ports, circuits, committed information rates, etc.), applications used today and any planned additions, as well as future business endeavors that affect the network, such as an expansion. An appendix should include the current configuration by site (street, city, state or Common Language Location Identification code).

- Include a timetable that specifies the date the RFP is issued, the date questions are due from providers, the final date responses are due, the week that initial cuts will be made, and the week that second-cut provider presentations will be held. In addition, include the date the bid will be awarded, the date the contract will be finalized, the date initial cutovers will

commence, and the date the final cutover will be completed.

Seek a description of the provider's network and offering. This should include the network resources that are owned and operated; methods to ensure redundancy and survivability; number and makers of domestic edge and core service switches; interconnections to other services; types of back-up services; types of access supported for primary and back-up services; and a list of features.

The list should include:

- The provider's detailed architectural schematic and a detailed cutover/implementation plan.
- The provider's one-time and monthly recurring access, primary and back-up services prices.
- At least four pertinent current customer references, meaning that they are of similar size and geographic distribution.
- The provider's customer service and support availability, presales and post-sales. The number of people assigned to handle the account, their

departments and how many other customers each supports.

- The provider's performance metrics (those actually achieved and warranted), installation and maintenance service-level agreements, network management capabilities, number and locations of network operations centers and hours of operation. Escalation policies and procedures should be fully delineated. What functions does the provider outsource to other companies? Providers often fail to disclose if and when they outsource, so it is also important to know the identities of those companies.

Ask what ordering, billing and customer support/trouble reporting systems are used by the provider. Many providers are moving to e-service architectures, but customer satisfaction with these platforms is mixed.

Finally, request an example of the provider's standard contract, including default terms and conditions.

Pierce is a research fellow at Giga Information Group. She can be reached at lpierce@glgaweb.com.

Plzak,
continued from page 25

five elected members and me — but we are expanding the board to seven individuals. The board meets three times per year, at the same time as the Internet Engineering Task Force (IETF) meetings. ARIN's policy decisions come out of its members. The board ratifies those decisions after showing that consensus is there.

What's your view of IPv4 address exhaustion?

Approximately 30% of the Internet address space has not been allocated. But a lot of what's been allocated is not in use. Whether you think we're running out of IPv4 addresses depends on your view of the world. My personal view is that we've got 5 to 10 years at least, based on how the address space is being handled.

What is the status of IPv6 address assignments for ARIN?

We've allocated space to 20 ISPs and corporate end users since IPv6 addresses became

available in the fall of 1999. In order to remove barriers to IPv6 usage, we suspended fees for IPv6 space until December of 2002.

Explain the ongoing controversy between ARIN and the IETF over IPv6 address assignments.

The issue is what is the standard block of IPv6 address space an ISP should allocate to an individual. . . . The problem is that nobody knows what that number should really be. We hope to have it decided by the end of the summer.

What interaction do you have with corporate network managers?

They come to us for Internet address space. If they justify the space, they get it. The larger companies with larger infrastructures tend to get their requests met. The smaller companies get their addresses from their ISPs. Say Company A buys Company B. Their IP address space is not property; it doesn't transfer like furniture. When Company A takes over Company B, they need to

justify taking over the address space. I can't think of a time when we have said no.

What is the relationship between ARIN and the IETF?

The IETF does protocol development. ARIN is the Internet Protocol registry. Many of our members are active in the IETF. I am co-chair of the IETF's Domain Name Server Operations working group. We have this understanding: The IETF does technical stuff, and the registry does policy stuff. We try to stay out of each other's business.

What is ARIN's relationship to the Internet Corporation for Assigned Names and Numbers?

ARIN is one of three Regional Internet Registries (RIR) and a member of the Address Support Organization (ASO) of ICANN [Internet Corporation for Assigned Names and Numbers]. Three members of the ASO Address Council are from the ARIN region. Three are from RIPE [Reseaux IP Europeens] and three are from APNIC [Asia Pacific Network Information Center.] The ASO selects three members of the

ICANN board, and Ken Fockler of the ICANN board is from the ARIN region. I go to all the ICANN meetings. The three RIRs contribute to the ICANN budget.

How does ARIN interact with the other RIRs?

We joke that we see each other more than we see our families. We all go to the IETF and ICANN meetings. On our Web site, we have a policy comparison that shows that our policies are very, very close although we have some differences in practice. Some of the major ISPs, like Global Crossing, are members of all three registries. ▣

CoreExpress,
continued from page 25

says Greg Davis, vice president of marketing.

Two weeks earlier, CoreExpress founder, chairman, president and CEO Mike Gaddis abruptly left the company without explanation.

The company had planned a 22,000-mile single-fiber network carrying five OC-192 optical channels — a total capacity of 50G bit/sec — to support the wholesale business and its main line of work, supplying an IP backbone that corporate enterprises access via their Internet service providers.

The network has been pared back to 15,000 miles and just one OC-192 channel.

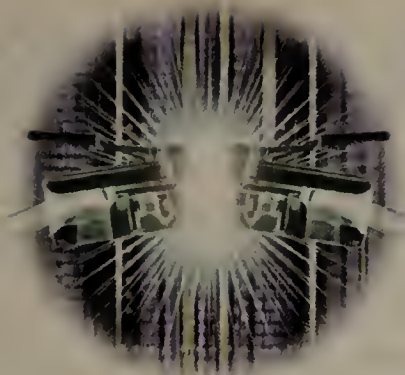
CoreExpress is running on about \$693 million in funding, about a third of that cash and the rest vendor financing of equipment. Davis says the company has not used all the vendor credit and has enough money on hand to run "quite awhile," although he wouldn't be more specific. ▣

www.nwfusion.com

REGIONAL INTERNET REGISTRY

Check out FAQs all about ARIN and follow our links for the latest domain and DNS news.





The Edge

Service provider developments at
the juncture between the enterprise
and the new public network

Briefs

Juniper Networks announced the IP OSS Alliance, a group of more than 20 third-party operations support system vendors that can manage Juniper routers with their software.

These vendors offer service planning, provisioning and activation, and invoicing, billing, and mediation from information generated by Juniper routers. The vendors use Juniper's JUNOScript application programming interface, XML included in the JUNOS operating system software, for this integration.

IOA: www.juniper.net/products/network_mgmt_ioa.html

Metro-Optix has announced a multimillion-dollar contract with service provider Network USA, which will deploy Metro-Optix's CityStreamT bandwidth manager in its fiber-optic network.

Network USA will use the SONET-based bandwidth manager to offer traditional and enhanced telephony services to its carrier customers.

CityStream's applications include ring aggregation, high-density Synchronous Transport Signal and Virtual Tributary-level grooming and multiplexing, service access multiplexing, DSL access multiplexer aggregation, ATM edge switching and IP routing.

Metro-Optix: www.metro-optix.com

Integral Access has secured \$45 million in a fourth round of financing. The company will use the funds for sales, marketing, research and development, international expansion and customer support for its PurePacket access platform, which supports provisioning of packetized voice and broadband video/data services.

Technology Crossover Ventures led the funding.

Integral Access: www.integralaccess.com

Cisco dials up new servers, software

BY JIM DUFFY

Cisco last week unveiled a new line of dial-access servers for service providers that support converged voice, data, fax and mobile wireless services, as well as an architecture for enabling those services through the new dial platforms.

The new servers in Cisco's AS5000 dial-access line are the AS5350, AS5400, AS5850 and the Access Path-UGS4. The products incorporate digital signal processors that support voice and data applications, instead of the voice-only or data-only digital signal processors in Cisco's current AS5000 lineup, which consists of the AS5300 and AS5800.

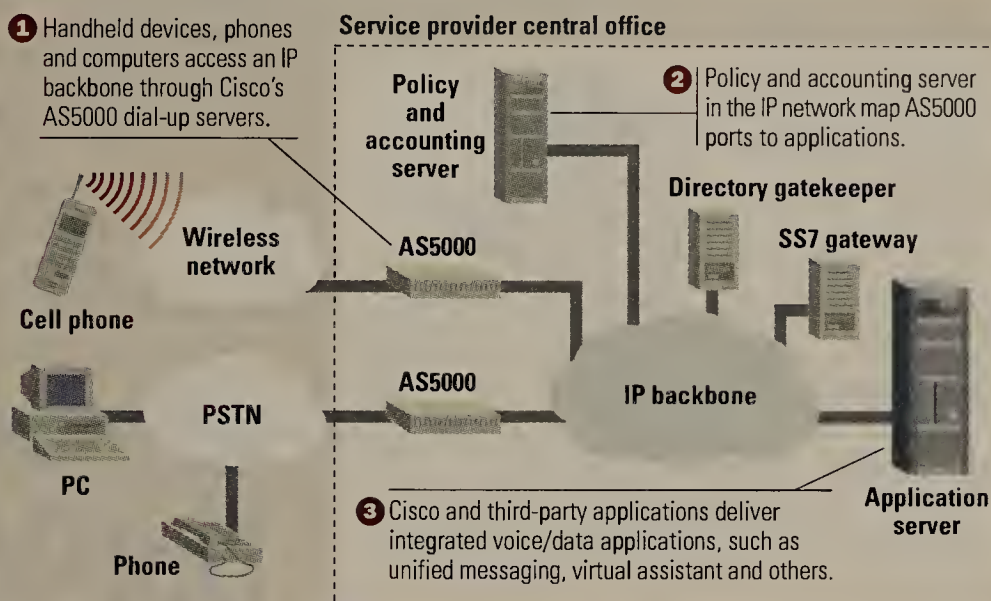
The AS5350 supports up to eight ISDN Primary Rate Interfaces. The AS5400 has up to 16 PRIs and data rates up to one DS-3. The AS5850 supports 112 PRIs and four DS-3s. Its 14-slot chassis includes a time-division multiplexing bus capacity to 8,000 DS-0s, or OC-12. It can house one or two route switch controller cards, which are programmable Layer 3/4 IP packet switching engines with a 5G bit/sec switch fabric.

The AS-UGS4 supports 192 PRIs in a "preracked" configuration and 14 DS-3s.

The Any Service, Any Port (ASAP) architecture, lets service providers deliver IP voice, data, fax and mobile

Profits ASAP

Cisco's Any Service, Any Port architecture is intended to deliver more profits to service providers by delivering new voice/data services to subscribers.



wireless services using one AS5000-based dial infrastructure at the edge instead of multiple overlay networks.

ASAP maps ports on the AS5000 system to back-end applications for unified messaging, virtual assistant and other services, and vice versa, using policy and accounting servers and directory gatekeepers. These mappings are facilitated by the new AS5000s, which are programmable, and

scripting languages, such as VoiceXML and TCL, in Cisco IOS software.

This software and the AS5000 dial-access servers are available now. The AS5350 is priced from \$14,400 to \$68,300; the AS5400 from \$48,600 to \$194,400; the AS5850 from \$85,000 to \$734,000; and the AccessPath-UGS4 from \$224,000 to \$2.7 million.

Cisco: www.cisco.com

Sorrento introduces new SONET/SDH subrate muxes

BY TERRI GIMPELSON

BALTIMORE — Sorrento Networks has added two SONET/SDH subrate multiplexing modules to its Electronic Photonic Concentrator family of optical access systems.

The new muxes aggregate 155M bit/sec, 622M bit/sec and 2.5G bit/sec SONET/SDH traffic onto a common wavelength for transport over the company's GigaMux dense wavelength division multiplexing optical transport system.

One is a 2.5G bit/sec multiplexer that aggregates various combinations of up to 16 155M bit/sec OC-3 channels and/or up to four 622M bit/sec OC-12 channels onto one 2.5G bit/sec OC-48 wavelength.

The second module, a 10G bit/sec mux, can aggregate four 2.5G bit/sec channels onto one 10G bit/sec OC-192 wavelength.

The products are available this quarter. The 2.5G bit/sec mux will be available in eight-port and 16-port versions. The 10G bit/sec mux will be a four-port module.

Grier Hansen, optical carrier and infra-

structure analyst for Current Analysis, says the new modules round out Sorrento's portfolio of mux cards.

"With the added capability to pack lower speed SONET and SDH streams into an OC-48 or OC-192, Sorrento now addresses these traffic types that will remain prevalent in existing networks," he says.

A recent Current Analysis report notes that integrated SONET muxing is not a new idea, and many companies are attempting to capitalize on the trend.

"This type of functionality is quickly becoming table stakes to compete in the metro space, and both of these cards are something that carriers can get from competing platforms," the report states. "ONI Systems, Sycamore, Lightscape, Alidian and others offer strong muxing functionality as well in their respective solutions."

Sorrento: www.sorrentonet.com

www.nwfusion.com

METRO MANEUVERS

Read about new dense wavelength division multiplexing platforms and follow links to breaking optical news.

find it 5144 online

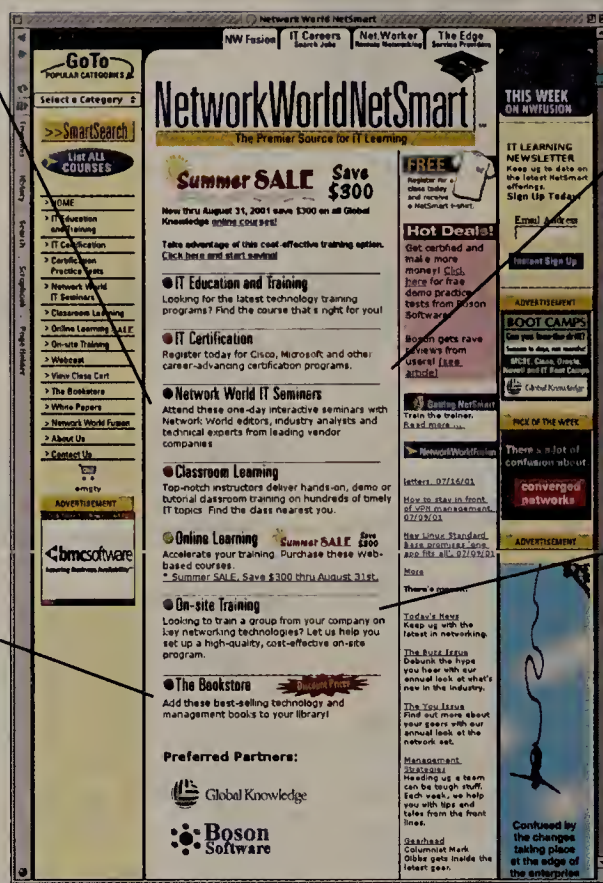
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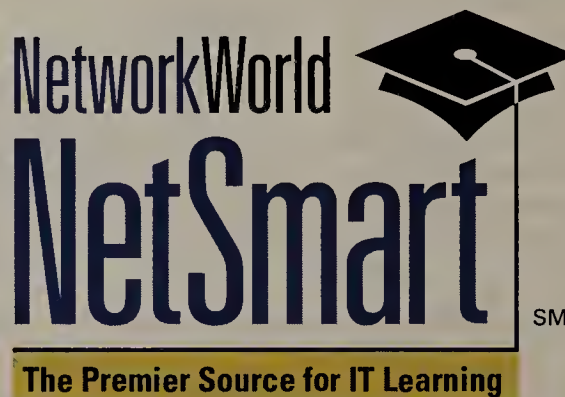


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Briefs

Software maker Marimba last week released a program for upgrading software on multiple networked PCs and an enhanced version of a tool that tracks and reconfigures sets of servers remotely. Marimba's **Desktop/Mobile Management** software is designed to help customers reduce the cost of upgrading computers in the workplace. The product supports Windows 2000 Active Directory, which lets administrators configure software based on the needs of particular groups of users in their profiles. Marimba's Inventory module — available in the third quarter — will let users audit their computers to determine what software is running on each computer. Marimba expects this feature to appeal to companies concerned about licensing penalties. Network administrators face similar problems configuring banks of servers quickly. The enhanced version of Marimba's **Server Management** software, available now, uses the Simple Object Access Protocol standard to automate reconfigurations. Pricing for the package is not available.

Marimba: www.marimba.com.

Sun and Electronic Data Systems announced a co-marketing agreement last week that they estimate will generate \$3 billion in sales over the next five years. As part of the "Sun-EDS Continuum of Services" program, Sun will provide hardware, software and architecture while EDS will provide services such as systems implementation, integration, consulting and outsourcing, the companies said. Financial terms for the deal were not released. The initiative will be focused at large corporate customers, and provides competition to IBM's Global Services division.

EDS: www.eds.com; Sun: www.sun.com

Security managers get some respect

At Reuters, Bell Canada security managers are intimately involved in network decision making.

BY ELLEN MESSMER

A decade ago, security managers were the guys who made sure the doors to the computer room were locked and the mainframe's authentication IDs were apportioned with discretion.

They still do that, but their role in determining what's safe for the corporation in the age of the Internet and e-commerce has raised their once-obscure status to that of high-profile IT decision maker.

Take phone company Bell Canada and international news and financial services provider Reuters, for example. The IT security manager at each company has an increasingly influential role in shaping the corporate network and how it gets used, particularly for telecommuting and e-commerce.

"Security has to be an intrinsic part of everything you do," says Bill O'Brien, the associate director of systems security at Bell Canada. "We have a policy that no project can be funded and approved unless our security group signs off on it. And we'll

work with them to do that."

"Security does underpin a successful e-commerce operation," says Tim Voss, who as Reuters' global IT security risk director manages a team of 30 security specialists from London.

Top 10 headaches for security managers

1. Servers, particularly Unix with its interactive shell, where ordinary users have logon accounts.
2. Having a single server running mail, FTP, Web and DNS all on one box, which offers a "package deal" to hackers: "hack one, get three free."
3. When one server runs everything, and the firewall is also on that server.
4. Lack of an intrusion-detection system and no effort made to log firewalled traffic, no summaries or periodic traffic analysis to identify denied or rejected packets.
5. "Temporary" holes in firewalls to accommodate requests without tracking how

SOURCE: SILVERLINE

long the hole is open or remembering to close it, leaving it as a "welcome mat" for intruders.

6. Use of default settings for client software with no timeframe for changing them.
7. No outside source, such as CERT or bugtrak, to gain information on vulnerabilities, depending solely on the vendor to disclose vulnerabilities in their products.
8. Failure to install software patches for known vulnerabilities.
9. Lack of training in network security principles for MIS staff.
10. Your operations team is not paranoid enough; the ideal network or systems administrator is paranoid beyond belief.

Beyond carrier pigeons

Reuters, now celebrating its 150th anniversary, once depended on telegraph — and if you can imagine it, carrier pigeons — to distribute its information.

See **Security**, page 32

Oblix boosts Web access control software

BY JOHN FONTANA

CUPERTINO, CALIF. — Oblix has beefed up its identification server with features that let customers share the management of user identities including delegation, group management and self-service.

With NetPoint 5.0, Oblix last week added a host of new group-based identity management features to its NetPoint Web-based access control software. The company also has added XML support for customizing interfaces, querying its identity server and controlling access.

Web-based access control software, which provides IT executives with authentication and authorization services for Web-based applications, is starting to gain popularity. It is beginning to be paired with provisioning software to create an end-user management system that can automatically create and delete users and control their access to resources.

The identity management features in

NetPoint 5.0 focus on group management, which let administrators create a hierarchy of user management that can extend beyond the bounds of IT into the intranet and extranet.

"5.0 gives us flexibility because more features are configurable," says John Frazier, director of infrastructure services for

i2 Technologies. The company has used NetPoint as part of a project to consolidate nine disparate repositories of user identity information. "The next app we deploy doesn't need to create its own identity system. We consolidated to improve the data's accuracy and to incorporate our applications with the directory."

Oblix hopes to make that integration easier with XML interfaces. A feature called Presentation XML lets users customize the look of the interface on the fly for individual users. Identity XML lets users send an XML document to the identity server to request user information without having to use the Lightweight Directory Access Protocol or programming languages such as C or Java.

NetPoint 5.0 is available now for \$50 per user. The software runs on Windows NT and Sun Solaris and supports iPlanet Directory Server, Novell's eDirectory, Microsoft's Active Directory and IBM's SecureWay Directory. Oblix competes with Netegrity and Securant.

Oblix: www.oblix.com

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'Net Insider . Scott Bradner

MY LAST ATM COLUMN?

A bunch of us were sitting in a restaurant near Napa, Calif., drinking some nice wine. The group consisted of me, some venture capitalists and our significant others. At one point in the evening the talk naturally turned to ATM.

One of the venture capitalists said that as far as he was concerned, ATM's role was only as the access technology for the last 100 feet. That seemed reasonable, but I'm not sure he was quite right. (At this point I expect my editor will want to expand the ATM acronym to "Asynchronous Transfer Mode," but I think that would be more than a bit silly. It would be one thing if the expansion produced something that made any sense, but quite another when it produces something that sounds like the name of a bad punk rock band.)

To some people ATM is closer to a religion than a technology. You can tell most of the true believers by the slight Bell shape to their heads, but a few have been under cover — able to masquerade as normal Internet geeks. Talking about the future of ATM with true believers, or with the knee-jerk ATM abolitionists, is a waste of time.

Luckily the real world shows up every now and then and renders many absolutist positions irrelevant. After a while it became clear to even the most ardent ATM fan that 155M bit/sec ATM to the desktop at the same or higher price as Gigabit Ethernet was not a good strategic plan.

The venture capitalist might be correct in thinking that a good place for ATM is in access link multiplexing, but he was ignoring the presence of many

ATM true believers in the traditional telephone world. Because they cannot conceive of a datagram network that could provide the quality-of-service (QoS) service-level agreements that they think they need, they will continue to use ATM in their networks. People from the datagram world who know that the right architecture in a datagram network will do just as well might have a competitive advantage, but the phone folks have the money these days.

The other place where this venture capitalist might be wrong is the stuff that looks like ATM in the access networks, asymmetric DSL being an example, is not "real" ATM. Rather, it's just ATM cells — there are none of the QoS features that defined ATM for most people.

This may be my last column about ATM — it's hard to get too worked up about a technology whose relevance to real-world data networks is as tenuous as ATM's is (sort of like the relevance of Thunderbird to the wine we had last night).

But then again, some of the ATM folks are now disguised as Multi-protocol Label Switching (MPLS) proponents, so there may be reason to bring ATM up again.

Disclaimer: Harvard banned wine (good or bad) from the dorms a few years ago and has not expressed an opinion of wine quality or ATM since.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Security, continued from page 29

Reuters now relies on satellite-based networks, T-1 lines and of course, the Internet, to deliver financial and news services to its customers, mainly financial traders, banks and investment firms.

"We have the second largest satellite network after the Pentagon," Voss says.

However, Reuters was piecing together networks long before TCP/IP came into vogue. The company retains an unusual legacy environment: It invented 57 network protocols of its own for LANs, switches and desktop systems for real-time information delivery and applications, such as audio. That situation compelled Reuters' security staff to design and develop all its authentication, intrusion-detection and firewall-like devices entirely in-house.

A little more than a year ago, Reuters, which now has 16,000 employees, began phasing out this self-invented network in favor of IP and the Web's HTML, the world's preferred information-sharing standards. Reuters has 128 separate Web sites and is slowly moving IP "from the boundary to the core," Voss says.

"We will buy commercial hubs and switches, and now we encapsulate IP [traffic] inside the satellite," he says. "In the past, we would have used private lines for this 500,000 desk-

top node network. Now it's the Internet."

At the same time, with France Telecom's data services arm, Equant, it set up a joint venture called Radianz to develop a managed global IP-based network for the financial markets. A few months ago Reuters also began working with Microsoft and 25 financial institutions to develop an instant-messaging service and contacts directory for professionals to use around the world.

With the shift to IP and the Web, Reuters is now buying commercial security products for the first time, and recently concluded a multimillion-dollar deal with Symantec for its host intrusion-detection software and other security products following lengthy tests of various vendors' products.

Voss says Reuters recognizes the shift to IP will inevitably increase the security threat from the hostile hacker world with its huge arsenal of weapons and denial-of-service attack tools. "There can be everything from script kiddies, a Trojan horse, a foreign group trying to make a political statement or even organized crime," he says.

Reuters still writes many of its own security applications and has never considered hiring a managed security services provider. "For some companies,

having a managed outsourced security service makes sense, but at Reuters, we consider security a core competency," Voss says.

Phone company security

At Bell Canada, O'Brien is part of a 128-person corporate security group in Montreal that has a

words used repeatedly.

Bell Canada's security department also requires remote users to use a VPN client for secure access to the Nortel Contivity switch, which includes a VPN gateway.

The security group determined that the threat of hackers breaking into laptops and

security group through a management console.

The next project for the security group is working with upper management in e-commerce. The phone company this summer may try giving business customers access over the Internet to online ordering and billing via the Bell Canada intranet.

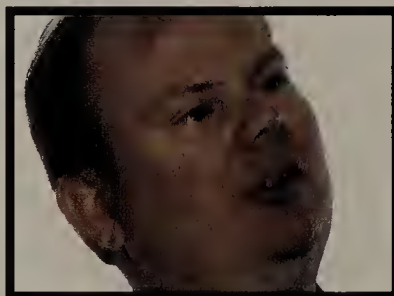
This would entail distributing Entrust public-key certificates to Bell Canada's business customers to use as an identity source for gaining access to the Bell Canada intranet through a Web-based

access-control server, probably Netegrity's SiteMinder.

The goal is to give digital certificates to eight million of Bell Canada's residential customers so they can view their bills online.

Bell Canada has had experience working with public-key certificates, distributing them to technical specialists to authenticate their identities before being allowed to work on telecom switches.

While there are always disputes about the appropriate level of security for all activities, O'Brien says, "for upper management, it's becoming clearer and clearer every day that we absolutely have to agree to have certain security measures in place." ■



"Security does underpin a successful e-commerce operation."

Tim Voss, global IT security risk director, Reuters

voice in every internal IT project and e-business effort at the giant telecom company.

About a year ago, Bell Canada made the decision to allow open Internet access for its employees, and also began exploring options for teleworkers. Firewalls were deployed, including the Cisco Pix and a Nokia appliance based on Check Point software.

The security team contributed to the design of the Bell Canada intranet, requiring teleworkers to authenticate their identities using the RSA Security SecurID hardware tokens that generate a unique password each time the user is asked to input an ID. Such variable passwords are considered to be far better security than static pass-

remote offices is so high that it would be prudent to add another layer of security in the form of desktop firewalls, of which the company tested nine vendors' offerings. The phone company selected the InfoExpress CyberArmor firewall, which retails for about \$50 per seat, for use on 6,000 desktops this year, and 25,000 within three years.

One reason for picking InfoExpress is that its desktop firewall was the only one Bell Canada tested that could "recognize" the Nortel Contivity VPN client software. This interaction was needed to let the outbound connection be made only in VPN mode.

Access rules are applied via InfoExpress' access control lists, which can be updated by the



Ask Dr. Internet

By Steve
Blass

I have a Macintosh Powerbook G4 Titanium with an Ethernet and PC card slot. My corporate network is token-ring-

based. How do I connect to this? Can the Macintosh translate and see the various drives? I also have Connectix's Virtual PC and DoubleTalk. What do I tell the members of my PC support team, who think Macintosh is a swear word?

Connecting your Ethernet cable to the token-ring network will not get your computer talking to the token-ring network; Ethernet and token ring are two completely different physical-layer network protocols.

You need a token-ring network adapter card to connect to the token-ring network. Madge is one company that produces token-ring PC Cards for Macintosh (www.madge.com/connect/Products/Adapters/#2).

You may also be able to find a token-ring card at a computer supply store that handles Macs.

Once you get connected to the token-ring network using a token-ring adapter card, you should be able to use the network via a TCP/IP protocol tool — such as a Web browser — right away. You should also be able to work with the Windows network through Virtual PC. Once you can "talk" token ring, you'll be in a better position to work with the PC support team.

Blass is a network architect at Change@Work in Houston. Send your networking questions to dr.internet@changeatwork.com.

Technology Update

An Inside Look at the Technologies
and Standards Shaping Your Network

InfiniBand offers to boost bus speeds

BY BILL KING

Server I/O technologies, particularly the PCI bus, have not kept up with the tremendous cost/performance improvements of processor, memory, storage and other related computer technologies.

InfiniBand is a new architecture designed to ease data traffic congestion among hardware devices, and is seen as a successor to PCI bus architecture.

The InfiniBand standard was initiated by the InfiniBand Trade Association, which includes Compaq, Dell, Intel, Microsoft and Sun. InfiniBand 1.0 is the first version of this new standard, which enables servers, remote storage and other network devices to be attached in a central fabric of switches and links. The new architecture improves system performance, reliability and availability. It also increases the independent scalability of fabric elements.

Links at 2.5G bit/sec

With channel-based links operating at 2.5G bit/sec, InfiniBand-enabled servers will be better equipped to meet the demands of data centers. With the InfiniBand architecture, server, storage and network nodes connect as peers through the central InfiniBand fabric. The architecture is designed around a point-to-point, switched I/O fabric, where end-node devices — from simple, inexpensive I/O devices such as single-chip Fibre Channel or Ethernet adapters to much more complex host computers — are connected by cascaded switch devices.

The InfiniBand architecture supports two predominant environments, with bandwidth, distance and cost considerations appropriate for these environments: module-to-module computer systems that support I/O module add-in slots; and chassis-to-chassis interconnecting computers, external storage systems and external LAN/WAN access devices in data center environments.

InfiniBand can support bandwidths greater than prevailing I/O media such

as SCSI, Fibre Channel and Ethernet. It uses IPv6 headers, which support efficient connections between InfiniBand architecture fabrics and traditional Internet and intranet infrastructures.

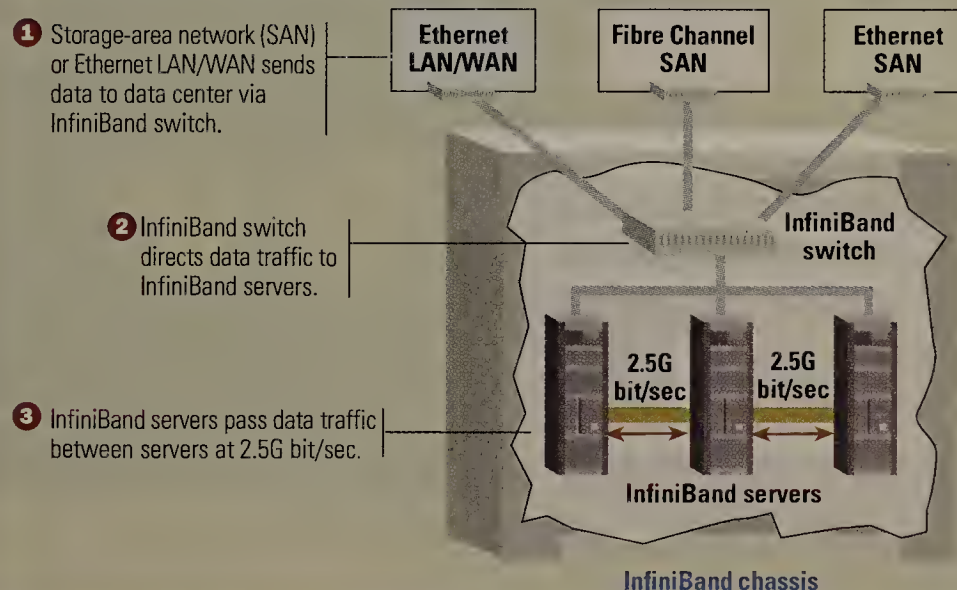
One of the more significant changes InfiniBand will bring is the removal of the I/O complex from the server. By replacing the bus architecture with

ing these key infrastructure issues by applying InfiniBand in a nondisruptive manner to existing applications, management frameworks and network infrastructures. A new tier will be inserted between next-generation InfiniBand-enabled servers and SAN/LAN infrastructures. This tier will be composed of intelligent switches that will

HOW IT WORKS

InfiniBand

In data centers, InfiniBand allows the creation of a highly scalable switch fabric that can reduce bottlenecks associated with PCI bus architecture.



InfiniBand technology, a server has the ability to remove I/O from the server chassis, creating greater server density, and allowing for a more flexible and scalable data center, as independent fabric nodes may be added as needed.

InfiniBand-enabled servers need to connect seamlessly into existing Ethernet LANs and Fibre Channel-based storage networks, unlike a server today, which connects directly to a LAN, a storage-area network (SAN), and sometimes to an Interprocess Communication network, through an I/O subsystem dedicated to each server/appliance.

This dedicated I/O subsystem consists of potentially redundant PCI buses, network interface cards and host bus adapters. The InfiniBand architecture was created to address PCI's inability to scale economically.

To facilitate the acceptance of InfiniBand technology, vendors are address-

interconnect servers (application appliances), network modules (routers) and storage modules (high-end storage appliances).

System-area networks

InfiniBand-based system-area networks address the growing need for advancements and innovation in the areas of clustering and high-bandwidth network and storage connectivity. If InfiniBand becomes the major system-area network fabric in data centers, larger InfiniBand switches with increasing degrees of intelligence will begin to emerge. This development will radically improve communications in the data center and the ability to store and access data with greater reliability and manageability.

King is vice president of marketing at InfiniCon Systems. He can be reached at bking@infiniconsys.com

Got great ideas?

Network World is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).



Gearhead . inside the network machine . Mark Gibbs

FTP? GEARHEAD'S HERE FOR YOU

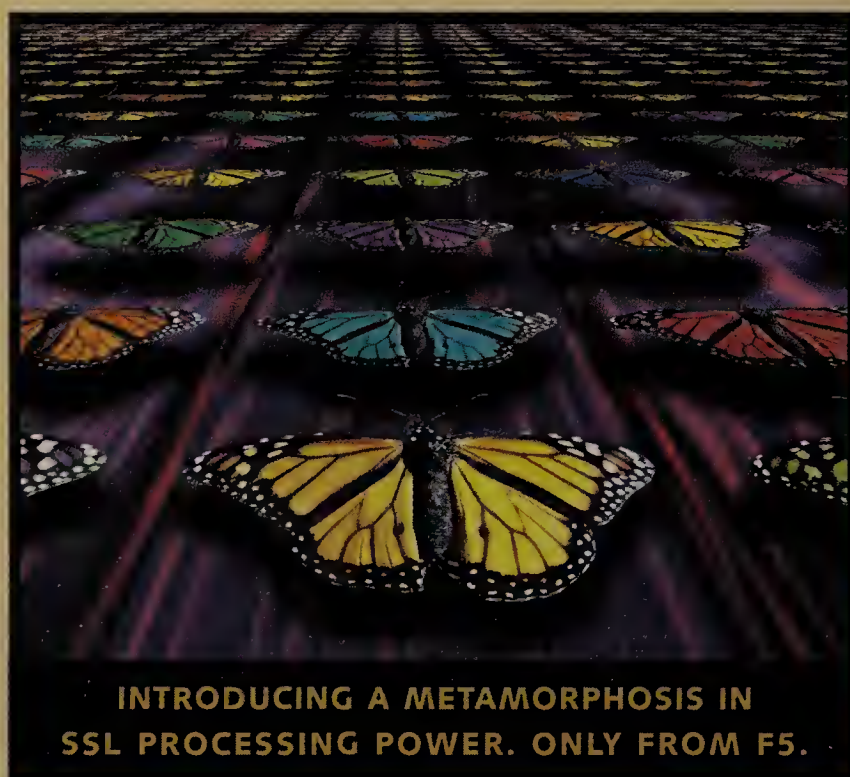
A reader wrote: "Sure I know what FTP does from a user's point of view, but how does it actually do it?" That is a fine question.

FTP has a long and illustrious history. It first appeared as an Internet Engineering Task Force RFC 114 in 1971. Curiously, today RFC 114 doesn't appear to

be anywhere on the 'Net!

But for all the current FTP request for comments that actually are on the 'Net, go to www.rfc-editor.org/cgi-bin/rfcsearch.pl and enter "FTP" as the search term. And the key RFC for FTP is RFC 959 written in 1985 (see [ftp://ftp.isi.edu/in-notes/rfc959.txt](http://ftp.isi.edu/in-notes/rfc959.txt)).

(SSL processing slowing your servers to a crawl?)



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FTP is a protocol designed to let data be transferred from one computer to another. It is a client-server system and, depending on the client's rights, files may be sent to or retrieved from the server, directories created, listed or deleted and file attributes modified.

The process required to transfer files involves three steps: 1. The client connects to the server and is authenticated (anonymous access may be allowed); 2. The client sends commands that may include listing and modifying directories as well as carrying out file transfers; and 3. The client disconnects (although disconnecting informally — that is, without telling the server you're about to disconnect — can be done safely).

To establish a connection, the client attempts to connect to TCP port 21 at the server's IP address. The client then authenticates through the user name command ("user <name>") and password command ("pass <pwd>"). Here's what an exchange between client and server looks like for anonymous access:

220 ftp.silcom.com ready. Unauthorized access prohibited.

user anonymous

331 Guest login ok, send your complete e-mail address as password.

pass gearhead@gibbs.com

230 Guest login ok, access restrictions apply.

Note that many FTP servers will check to see if the given e-mail account (or sometimes just the domain) exists and will deny access if it doesn't.

As with most Internet protocols, a status code is added to text status message. This makes it possible for applications that might not understand the text reply to understand the responses.

For access through a named account, the process looks more-or-less the same:

220 ftp.somehost.com ready. Unauthorized access prohibited.

user gearhead

331 Password required for gearhead.

pass verysecret

230 User gearhead logged in.

So let's say we want to list the default directory on logon. We have to first set the format for data transfers to the client. This is done with the "type <type>" command. The argument <type> can be A for ASCII (used for test file transfers), E for EBCDIC (for all you old IBMers), or I for image (as in no translation). We can now use the "pwd" command to print the name of the working directory. Thus:

TYPE I

200 Type set to I.

pwd

257 "/" is current directory.

So we've been connected to the FTP server, we've been authenticated, and we know what directory we're in. Now it gets interesting, but you'll have to wait 'til next week as we've run out of space.

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Editorial

Not on my shift

I remember discussing in college the notion of making computers actually “think” like humans. At the time (1986 or so) true artificial intelligence was still a bit of a novelty reserved for movies such as “2001: A Space Odyssey” and its HAL computer (remember HAL singing that creepy version of “Daisy” when he was being shut down?).

This summer the sappy cyborg movie “A.I.” continues the sort of mythology that surrounds the actual technology of AI. Can machines really think? Who knows, but it’s a neat concept.

I bring this up because IBM last week announced a help-desk software package that purports to use AI to solve problems. The software,

called Virtual Help Desk, incorporates an AI engine IBM researchers say can understand complaints typed into its system and can fix many PC or network problems without human intervention.

For example, a user who encounters a routine computer problem — perhaps the result of a lost password or corrupted software — can call up a help-desk screen, type a complaint in a text window and receive an automated repair. According to IBM, Virtual Help Desk runs an “applet” that examines the ailing machine and makes a repair or suggests another remedy, possibly calling a technician. Customers can get live assistance through instant messaging. IBM claims the system can handle 20,000 simultaneous calls. And IBM says Virtual Help Desk will get even smarter over time — able to answer voice calls and fix problems that today require a technician.

The Virtual Help Desk is part of IBM’s ambitious multibillion-dollar Eliza project that has the company developing self-managing, self-configuring and self-healing servers that require little human interaction. The idea behind the Eliza project is to free IT professionals from mundane and often difficult, time-consuming tasks where outcomes are hard to predict, such as capacity planning and server failovers.

Now I know what you’re thinking. These grand IBM schemes have fallen into black holes before and time will tell if users buy into this technology, or if Big Blue makes this technology interoperable with other vendors’ gear.

But it would be kind of interesting to hear my PC sing “Daisy” as the hard drive fails only to have some AI software intervene and say “Hey, not on my shift you don’t.” Probably only in the movies.

— Michael Cooney
Associate news editor
mcooney@nwfusion.com

Message Queue

ADVICE FOR BOB

In his Backspin column “Approaching a cure, sip by sip” (www.nwfusion.com, DocFinder: 5137), Mark Gibbs asks for approaches his friend Bob can use to persuade his employer to “spend a significant amount of money on the corporate network.”

Bob should start by taking a couple of days to catalog the network’s problems and inefficiencies, and develop a realistic estimate of its ability to serve the needs of the firm, and the risk of maintaining the system as is. He should include the possibility of downtime: estimated time to bring the system back up; cost to the firm in lost productivity and possibly lost files; and so on. This assessment should be no more than one written page.

Bob should follow this with an incremental plan for updating the system — replacing what needs to be replaced immediately, along with an estimate of time and money involved, and a three-year plan for upgrading and improving the system to where it should be to keep up with the company’s needs. Once again, one page.

Next, he should take both of these pages to a half-dozen of the company’s key managers. In closed-door, one-on-one sessions, Bob should explain the situation and the possible risks, and outline his solution. He should explain that he plans to present this to the CEO but that he would appreciate their input first. He should answer any questions they have and leave the pages for them to review. Finally, he should ask each of them to provide a brief description of how the problems could affect their departments, and ask for their support when he presents it to the CEO.

This approach lets the managers know that Bob has done his homework — that this is not just another “I want it my way and I don’t care what it costs” approach to technology — and that he is looking at it from their perspective.

The short one-page problem description and solution format makes it easy to read and understand. It also forces Bob to clearly define what’s wrong and what it will take to fix — without getting too immersed in detail.

Talking to the managers lets Bob get to know

key people in the company while showing them his capabilities. It also allows Bob to test the waters to see if there will be a positive response to his plan.

Of course, this plan involves some work and thought from Bob. However, if all the other aspects of the job are as appealing as he described, it may be worth it.

Maria Muto-Porter
President
Muto Management Associates
Phoenix

If Bob is truly a professional, he has only one choice: to tell senior management what must be done to have a reliable secure network; what it will cost; and how they can achieve it in a rational, planned manner. If they won’t do it, he must quit. I did exactly that, after three weeks on the job, last year.

Dick Monahan
Vice president of development
IntelliReach
Dedham, Mass.

A ROLE FOR P2P

Regarding James Kobiulus’ column “P2P ‘fat clients’ are wrong for Internet collaboration” (www.nwfusion.com, DocFinder: 5138):

I agree that anything that forces users to install and configure is not likely to go over well, but I don’t agree that a peer-to-peer technology like Groove can’t get widespread adoption. Remember that the Internet is a result of the adoption of TCP/IP by a group of disjointed networks.

The most likely avenue for widespread adoption lies in places such as Project JXTA (as a common protocol like TCP) or in Microsoft’s .Net strategy (which would allow for the software to be bundled with Windows, much like the Internet Explorer browser). Unfortunately, Groove doesn’t fit into either of these groups and will have to be quite the marketing machine to gain the widespread adoption required for its survival.

Brian Gallaway
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E-mail letters to jdix@nwfusion.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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NOTHING CAN STOP NEXT-GENERATION WIRELESS SERVICES

The market for wireless data products and services is starting to boom.

You would hardly know it, though. After nearly a decade of disappointment, wireless data finally found its wings only to have them clipped by an economic slowdown. Wireless data growth is also obscured by regional differences.

Global wireless data markets are a study in contrasts. In Japan, roughly 30 million consumers access the Internet from their mobile phones. In Europe, two-way messaging is the rage among young people. And in the U.S., enterprise use of wireless LANs and mobile data is on the rise.

Indoor and outdoor wireless data applications are gaining traction. If the two ever converge, and there are indications they will, things could get really interesting.

Wireless LANs are spreading rapidly in offices, schools and homes as the cost of hardware drops. The IEEE 802.11b standard, also known as Wi-Fi, has matured, and PC card adapters are available for as little as \$150 each. Expect new wireless LANs running 54M bit/sec next year based on technology that could

evolve to 200M bit/sec.

The picture for mobile data is also much brighter. Cingular Interactive's two-way wireless messaging service has experienced a tenfold increase in subscribers over the past few years — from 60,000 to more than 600,000. And Sprint PCS is believed to have more than 1.5 million Wireless Web users.

Mobile phone operators are investing heavily in 2.5G and 3G wireless technologies with robust data capabilities. Sprint PCS and Verizon Wireless plan to introduce mobile data services running up to 150K bit/sec soon, with nationwide availability likely by the middle of next year and an upgrade to 300K bit/sec just around the corner.

Serving indoor hot spots such as airports will be a major challenge for next-generation wireless services. Because mobile phone networks mainly use outdoor base stations, their signals don't always penetrate buildings. The ideal solution may be a combination of indoor wireless LANs and outdoor 3G technologies.



A new species of wireless LAN has emerged: the public wireless LAN (PWLAN). PWLANs are springing up in airports, convention centers, hotels and on campuses. Most PWLANs are based on Wi-Fi, but Bluetooth and IEEE 802.11a could also play significant roles. Bluetooth is an inexpensive technology that can be integrated with everything from wristwatches to pay

phones. In addition to higher throughputs, the IEEE 802.11a standard could help bring the cost of delivering a megabyte of data to a few tenths of a penny.

Armed with hybrid networks, mobile phone operators will be able to provide services that seemed impossible just five years ago.

It pays to remember that the world's biggest economy was built by optimists. The economy may slow the advance of next-generation wireless services, but nothing can stop them.

Brodsky is president of Datacomm Research of Chesterfield, Mo. He can be reached at ibrodsky@datacommresearch.com.

Speaking the LANguage. Linda Musthaler

COMPAQ ALPHA ANNOUNCEMENT BODES WELL FOR USERS

Given that I literally live in the shadows of Compaq's worldwide headquarters, I tend to follow the company's exploits closely. Having done some consulting for Compaq over the years, I am familiar with its technologies and business directions. I've been reading the screaming headlines ("Compaq to kill off Alpha line," "So long Alpha, hello Itanium") about Compaq's June 25 Alpha announcement, and I think many people may be jumping to the wrong conclusions.



For those who missed it, Compaq and Intel held a joint press conference last month to announce Compaq would be transferring key technologies and resources (that is, people) for its 64-bit Alpha microprocessor line to Intel. Intel will incorporate the technologies into its 64-bit Itanium microprocessor.

If you read only the previous two sentences and nothing more, it's easy to jump to the conclusion that Compaq is ditching one of its crown jewels, the powerful 64-bit Alpha microprocessor. In truth, Compaq is just making sure that the technology lives on through a long-term agreement with its close partner, Intel.

Alpha was developed a decade ago by Digital Equipment and acquired by Compaq in 1998 through its merger with Digital. Over the years, Alpha has been a 64-bit technological marvel with a significant lead over Intel's own lagging attempts to bring a competitive chip to market. Alpha garnered significant respect in the IT industry, albeit not a significant customer base. Indeed, servers based on the Alpha platform are used

for some of the most complex computing situations in the world, including mapping the human genome.

Despite Alpha's stellar transaction-processing performance numbers, including record-setting transaction numbers as recent as last month, the Alpha chip never attained the high level of commercial success necessary for economy of scale. That means it is very costly for Compaq to conduct the necessary research and development to maintain this platform's high value and differentiation from other 64-bit platforms, most notably Intel's impending Itanium offering. R&D expenses between \$300 million and \$500 million per year are a hefty price tag for Compaq to absorb.

Compaq faced further complications. It has three enterprise server product lines, each based on a different microprocessor platform. Despite the differing architectures, many of the functional capabilities of the product lines were beginning to overlap, confusing customers and driving up the costs of selling and supporting three distinct server families.

Compaq Chairman and CEO Michael Capellas says the company underwent a stringent engineering review and determined the most logical action plan was to begin converging its servers and operating systems on one 64-bit microprocessor architecture. Compaq is turning to its long-time partner Intel for that common architecture.

Rather than ax the Alpha chip completely — thus sending thousands of Alpha-dependent customers scurrying to competitors such as IBM or Sun for alternatives — Compaq and Intel will be making the most of Compaq's knowledge of the 64-bit computing arena. The Alpha researchers and engineers will be taking their 64-bit expertise over to Intel, where they will infuse the Intel Itanium platform with their

engineering excellence.

As a result, Compaq announced it would standardize its server product lines on the Intel Itanium chipset in the coming years. Further, it will port its enterprise operating systems — Tru64 Unix, OpenVMS and Non-Stop Kernel — to the Itanium platform. Every customer, including those who use Windows 2000, will be given a smooth roadmap into the future.

If you think I'm looking at this situation through rose-colored glasses, read what other analysts, consultants and customers are saying. Terry Shannon, author of the newsletter "Shannon Knows Compaq" and long-time Digital/Compaq observer, is very bullish on this announcement. (Read his assessment under "analyst report" at www.compaq.com/hps/ipf-enterprise/).

According to Shannon, Tru64 Unix and OpenVMS will become less proprietary in nature, and more independent software vendors will pledge their support to these platforms, giving customers more choices. Shannon concludes that "Compaq's decision to embrace [the Intel processor family] across the board will establish the firm as the only vendor who can offer a selection of enterprise-class [operating systems] on the Intel platform."

That doesn't sound like abandonment to me. Maybe those screaming headlines should look at the long-term view of the situation. All in all, customers who depend on the Intel Itanium platform — whether they buy Compaq servers or someone else's — should benefit from the technology infusion when "Intel Inside" also means "Alpha Inside."

Musthaler is vice president of Currid & Company, a Houston-based technology consulting firm. She can be reached at linda@currid.com.

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In Motion

Revel in yourselves

These are touchy times for those involved in the network industry. As IT professionals, some of you have either been victims of the dot-com bust or know of peers who have. Others have watched favored vendors lapse into financial trouble, if not ruin.

But no matter how close to home, these troubles don't seem to get many of you down. In our second annual Top Concerns survey (page 60), for example, only a small portion — 6% — of the 100 network executives we interviewed said they were more worried about changes in the industry than they were about technology, managing employees or their own careers. And even those who fell into that grouping said the issue was more about rapid industry change than about the impact of vendor misfortunes.

Most of those surveyed seem relatively secure in their jobs, with only 10% ranking career as their biggest general concern. That result mirrors what we found in other research conducted for this Signature Series edition, our third annual You Issue. While industry change has tightened the IT job market, we found salaries for network professionals are still increasing (page 49) and job opportunities still widespread (see www.nwfusion.com, DocFinder: 5140). We even found that the iron curtain that has so securely closed the CIO office to network executives in the past is capable of being pulled back (page 43).

And, of course, our extensive You research, formal and informal surveys, and interviews continue to show that you are a fascinating group. Whether you're doing your jobs or pursuing personal goals, your enthusiasm is contagious.

So take some time to read through these pages, check out our You portal at www.nwfusion.com/you2001 and revel in yourselves.

— Beth Schultz
Editor, Signature Series
bschultz@nwfusion.com

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You online

Visit the You portal, a special Signature Series Web site loaded with exclusive articles, tools and more. There you will find:

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- Your quest for work/life balance.
- 10 things to do before you retire.
- Your changing career opportunities.
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- Your life or a reality game show?
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The You Issue is one of six bimonthly supplements providing insights, opinions and information on the biggest trends in networking. Look for the inside story on the hottest network technologies in the next installment of the Signature Series, the Buzz Issue, coming Sept. 24.

COVER/PINBALL ILLUSTRATIONS BY BARNEY LAHAYE



THE
Signature
SERIES

THE NATIONAL E-BUSINESS INFRASTRUCTURE

Pop Quiz

01. What is an e-business infrastructure?

- (a) *I don't know*
- (b) *the foundation for a closed enterprise*
- (c) *the inside structure of four walls*
- (d) *intranets, extranets, servers, storage, software; everything that connects employees to customers to suppliers to partners*

02. A well-thought-out infrastructure is necessary for...

- (a) *handling 2 billion transactions a minute*
- (b) *instant collaboration*
- (c) *designing, building, launching and delivering a new model of automobile*
- (d) *all of the above*



03. What scenario best describes this photo?

- (a) *forgot to order mineral water*
- (b) *mispronounced German client's last name*
- (c) *made the evening news...in a bad way*
- (d) *learned that his infrastructure could not scale to meet new customer demands*

04. A shipment of steel alloy is traveling 100 miles to point X at 75 mph. A shipment of plastics is traveling 86 miles to point X at 65 mph. Which will arrive first?

- (a) *the one pulled by the newest locomotive*
- (b) *the one with the lightest load*
- (c) *they both arrive at the same time because they were connected to the same reliable back-end infrastructure*

05. Complete this sentence in the pluperfect:

Our infrastructure failed because _____ integrating multiple platforms and protocols.

- (a) *we're having trouble*
- (b) *we have had trouble*
- (c) *we have trouble*
- (d) *we had had trouble*

06. A well-planned e-business infrastructure helps supply chains...

- (a) *count presidential ballots*
- (b) *stock Mt. Everest base camps*
- (c) *plan festive holiday parties*
- (d) *replenish inventories on demand*

Answers

01. d 02. d 03. d 04. c 05. d 06. d 07. c 08. d 09. d 10. c 11. d 12. d 13. / 14. d 15. c

07. How should you implement an e-business infrastructure?

- (a) *deploy, debug, strategize*
- (b) *install, deploy, retrofit*
- (c) *strategize, test, deploy*
- (d) *panic, spend, weep*

08. What does it take to maintain a secure infrastructure?

- (a) *universal password protection*
- (b) *test your own system for vulnerabilities*
- (c) *build a redundant security that frustrates hackers*
- (d) *all of the above*

09. The most important action when merging two different companies' IT systems is:

- (a) *a pep rally*
- (b) *celebrate the merger with a commercial*
- (c) *expensive and tedious "workarounds"*
- (d) *adopt open standards*

10. Which of the following best represents a well-implemented infrastructure?



(a)



(b)



(c)



(d)

11. Infrastructure is to profit as:

- (a) *speed is to wireless*
- (b) *customer is to sale*
- (c) *capacity is to server*
- (d) *all of the above*

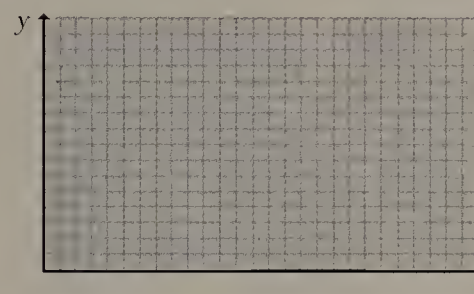
12. Venture capital is most likely attracted to start-ups with:

- (a) *the best logo*
- (b) *those who have failed before*
- (c) *MBA's who wear sandals*
- (d) *business plans that take into account 1 billion mobile users worldwide*

13. Complete this graph:

x equals the amount of abandoned online shopping carts

y equals the delays attributed to an online store's sluggish servers



14. The most complex infrastructure challenge for mobile e-business is:

- (a) *reducing Web page sizes for PDAs*
- (b) *responding to a billion wireless devices*
- (c) *reconciling 30 different platforms, including Bluetooth, WAP and Palm*
- (d) *all of the above*

15. How do you know you're ready for IBM?

- (a) *they're having a sale*
- (b) *you overheard people talking about them at a business dinner*
- (c) *you realize infrastructure is the biggest and single most important issue of this decade*
- (d) *you need a supercomputer to defeat a chess master*

THIS WAS ONLY A POP QUIZ. The real test is extremely difficult. And you may not have a lot of time. That's why you need to know as much as you can about e-business infrastructure now. It's complicated, complex and a hard concept to grasp. If you don't understand it fully, you want a partner who does. Someone like IBM that has the knowledge, resources and experience of having built solid infrastructures in your industry. Call 800 426 7080 (ask for infrastructure) or head to **ibm.com/e-business**





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— George Pope Morris



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CIO: You can beat the discrimination

Despite technology know-how and management prowess, network professionals are routinely passed over for the CIO spot. But you can fight this unfairness.

BY JULIE BORT

You control a big chunk

of the IT budget, oversee a dozen vendors and manage a highly educated staff. You regularly discuss network requirements with your CEO and sometimes the board. Your projects are acclaimed as business-enablers. You are leadership incarnate, with all indicators pointing to a CIO role, you believe.

But chances are you'll be passed over for that promotion like a pedestrian watching an F-16 jet fly overhead. The hard truth is network professionals are woefully discriminated against when it comes to landing top technology spots. Despite the increased visibility of the network, senior management and recruiters stubbornly perceive even the highest ranking network executives as not having the right stuff — compared to lead application developers — even though infrastructure is a main component of virtually any top IT role.

"That role going to someone in infrastructure rather than development is the exception," says Gina Schiller, a CIO recruiting specialist for JB Homer Associates in New York.

In fact, a computer programmer with little to no infrastructure experience is four times more likely to become top technologist than an infrastructure expert with little to no applica-

tion development experience, according to a *Network World* study of 100 resumes of CIOs and similar senior technology executives (see www.nwfusion.com, DocFinder: 5141).

Your chances double if you have application development experience, but that still leaves you at a disadvantage. Network experts who have managed big application projects still lag behind people who have done nothing but code, our research showed.

Specifically, developers with little to no infrastructure experience landed 33% of the top technology positions studied. Application developers with significant networking credits (such as the creation of a remote-access infrastructure) got 27% of the jobs. Network professionals with significant application project management experience (such as the creation of e-commerce systems or enterprise resource planning rollouts) scored 19% of them. Net-

work professionals with no significant application development experience grabbed only 9%. (And, of those nine, two were replaced within a year by application development folks.) This is less, even, than those who don't come from the technology ranks at all, but sport a business or financial background. These people snatched 12% — albeit, all had notable technology project management experience.

A new trend called succession planning could make the matter worse. In succession planning, a company grooms someone as CIO. A lack of infrastructure experience is also the norm, Schiller says — and not considered a concern because training is part of the program. Infrastructure folks are squeezed out of the running from the get-go.

Still, the situation isn't hopeless. Network professionals who acknowledge this discrimination exists — and understand why — can reshape their images, show off their business acumen and cross into the

vice president ranks and beyond. Also, the CTO role common in government and growing in corporations can open doors. CTOs handle all the down-and-dirty technology aspects of a CIO's job, such as product standardization, and free the CIO to concentrate on business issues such as financing (see www.nwfusion.com, DocFinder: 5143).

But your course won't be easy. No matter how well you fly, you'll be flapping against the wind.

Network professionals who have managed to climb to vice president or CIO positions say they've experienced this anti-infrastructure bias.

"It's harder for networking guys," says Paul Czarnik, vice president of technology and CIO for San Francisco recruitment firm Wetfeet. "If you are a technical professional who focuses on infrastructure, you don't have the exposure to the company's customers and business side that drives decisions. The best technical idea is not always the best business decision."

See **Ceiling**, page 46

Gaining business insight

For an IT career, customer contact makes all the difference between respect and obscurity, says Jack Gelman, vice president of networking at Dow Jones.



**Your
CAREER**

Fight back Discrimination against network professionals for top technology positions is widespread, but these tips can help you beat the odds.

GET application development experience. A well-rounded resume will help you land the job and excel at it once it's yours.

ATTEND SALES CALLS or otherwise make contact with customers. Learning about customers lets you base technol-

ogy decisions on business merit.

INTERACT with business managers often. Volunteer for committees, attend company meetings and luncheons. Schmoozing turns you from technician to person.

TALK BUSINESS. Discuss the infrastructure's impact on business goals and avoid yapping about its technological underpinnings.

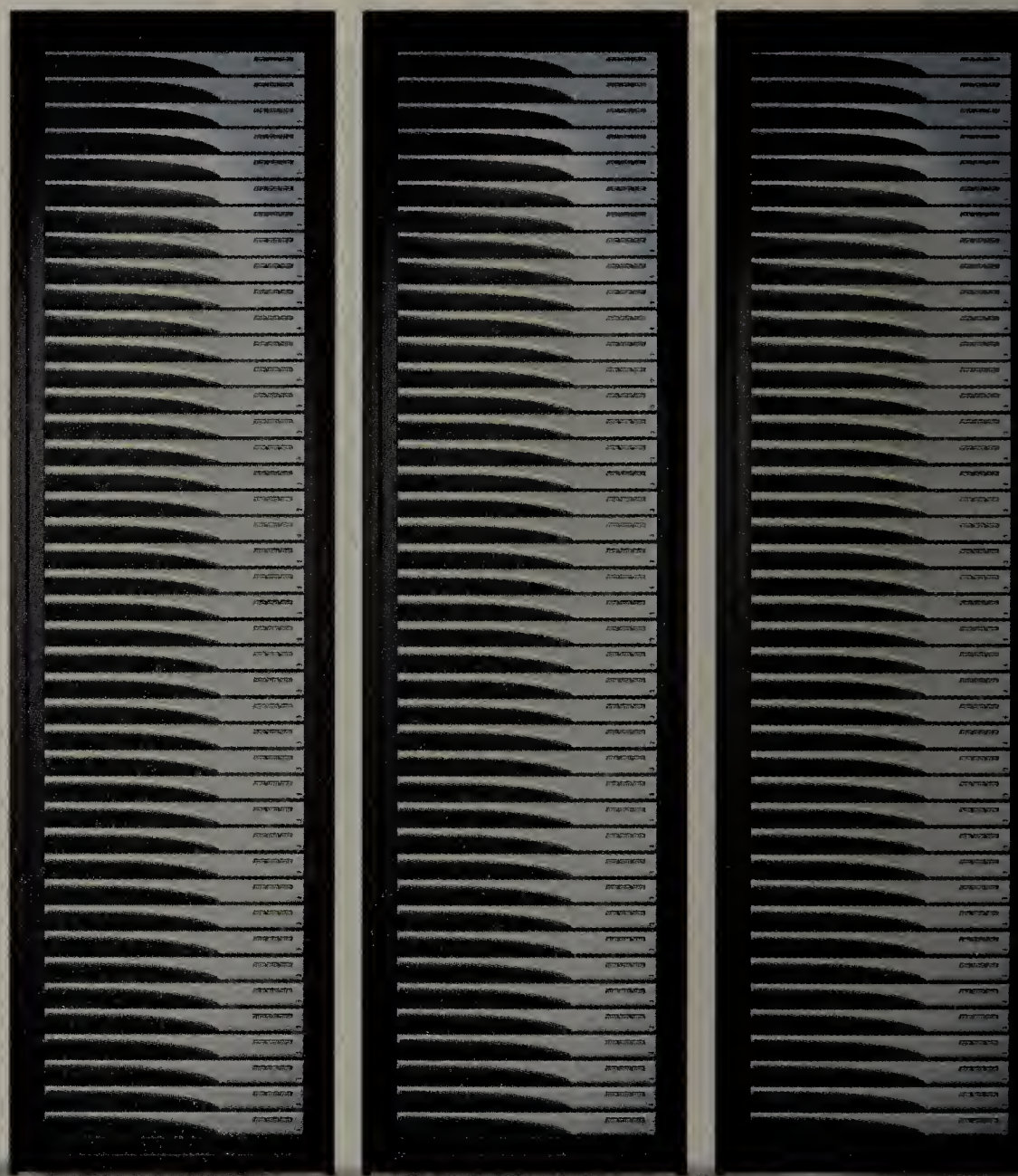
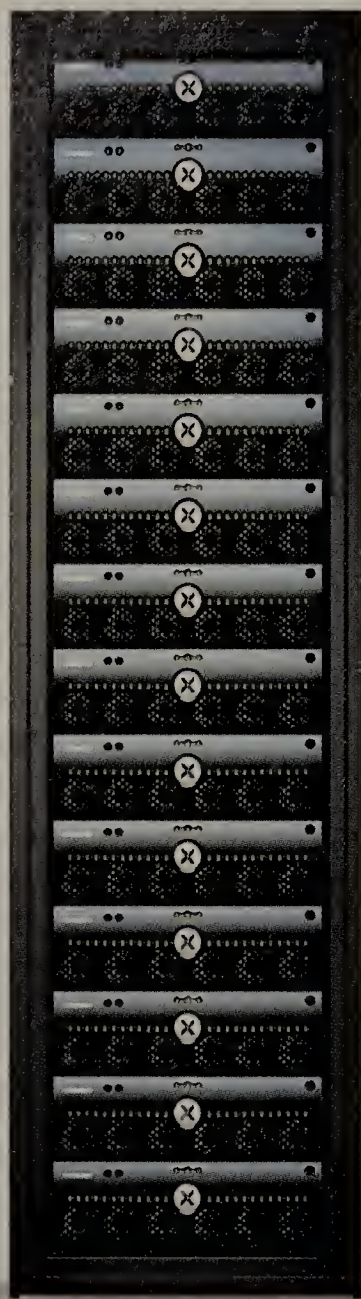
PROMOTE your business skills. Whenever possible, play up your employee and vendor management, negotiation and fis-

cal experiences.

SHOW OFF your smarts. If you have multiple degrees, don't let them be overshadowed by your technical certifications.

IF YOUR COMPANY traps you at the data center, consider moving to the vendor ranks, where wider business management roles are available to technical people. This could build your resume for an enterprise CIO job.

CONSIDER a two-phase approach to the top, aiming for a CTO-type job first (see www.nwfusion.com, DocFinder: 5143).



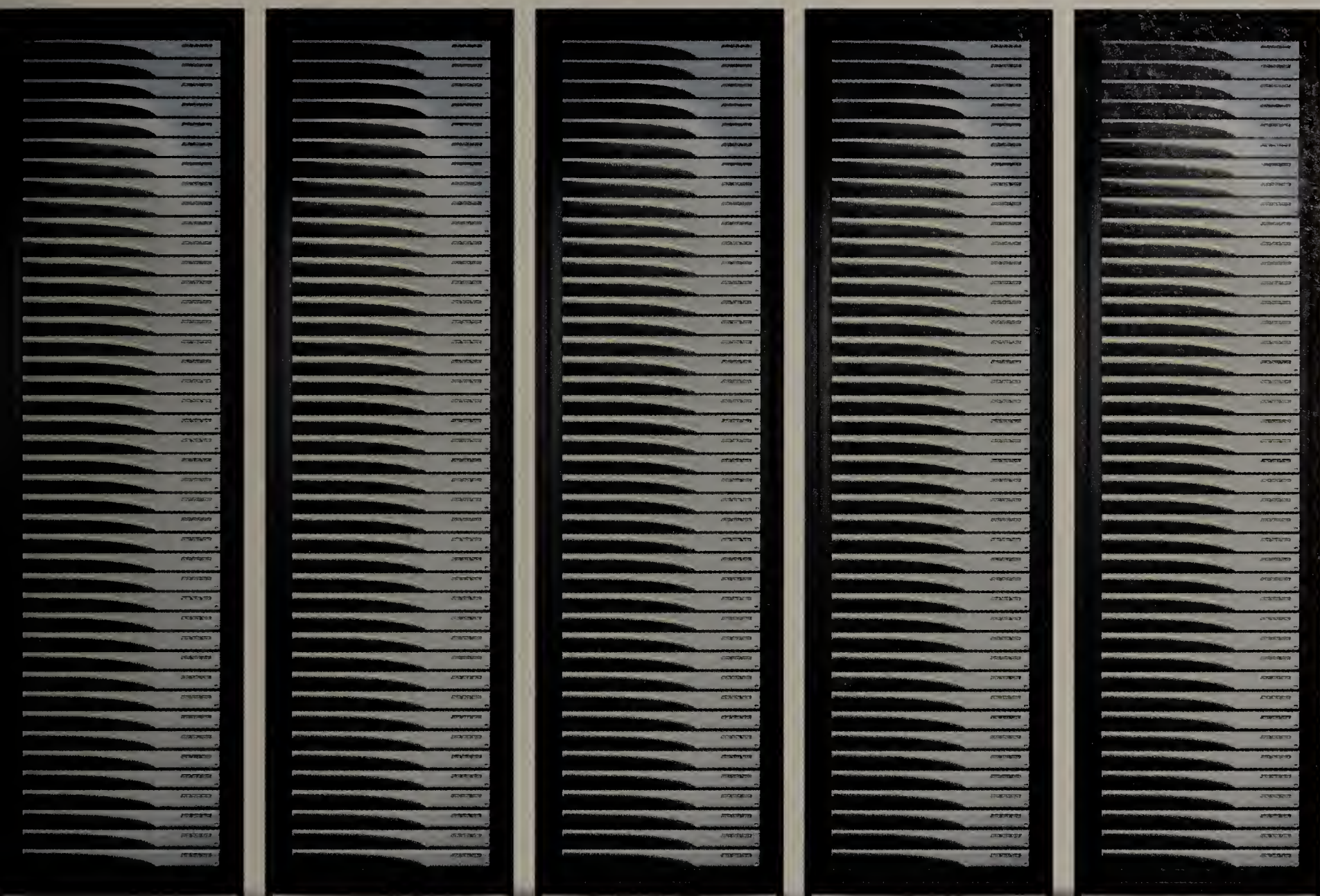
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Ceiling, continued from page 43

The iron IP curtain

Czarnik's observations come from his experience as a programmer and a network professional. He began his career as a programmer, but moved quickly into development of network products. In 15 years of IT management positions in the '80s and early '90s, he moved from head of engineering for SunConnect to vice president of engineering and CTO at LANQuest. He held similar positions at a few other vendors before landing the top technology spot at Wetfeet.

Now, as a consumer of the network products he built, Czarnik has broad technology know-how. But, more importantly, he says, keeping himself in front of the iron IP curtain of the data center as a network professional gave him the experience to make business decisions — the cornerstone of his current job.

Czarnik determined how to allocate money and manpower for an application service provider (ASP) that Wetfeet launched earlier this year. "With our ASP product, do we aggressively acquire customers and do I have the resources to do that now? Or do we first bolster the technology? If we get the customers first, how do I deal with potential problems like scalability? As CIO, I'm making decisions, more than stating technical direction," he says.

Network professional Jack Gelman also believes that infrastructure people have a harder time gaining top management promotions. His business experience and an MBA helped him earn a vice president title for his role as head of networking at Dow Jones in Princeton, N.J. He oversees 500 workers for the network, data centers, desktop and field services.

Gelman began his career in research and development for Bell Labs and then moved into sales for AT&T, where he learned to become "a profit and loss manager." These experiences taught him that, for an IT career, customer contact is the difference between respect and obscurity, he says. So at Dow Jones, he makes sure he is regularly included in customer sales calls. Such contact gives him the business insight he needs to educate his peers on the network's business impact. This, in turn, gives him an equal footing with the application developers.

"Application people are more visible and closer to the business. They get to appraise things from user and business perspectives," Gelman says. "[But] things are changing. Decisions made on projects were historically made around applications. But the infrastructure is outliving applications. The

complexity of the infrastructure is driving costs and time to market."

Gelman points to this fact to ensure that his infrastructure organization is included in all project planning, alongside the application group. "The earlier we get involved, the more we can make sure the right choices are being made. That's the shift," he says.

Education misconception

While a lack of visibility is the crux of the problem, the bias against infrastructure professionals runs deeper. Top management, human resource professionals and recruitment firms — even those that specialize in technology executive placements — typically view network professionals as technicians, whose roles are operational and not strategic, says Allan Grossman, senior partner for recruiting firm A. Davis Grant & Company in Edison, N.J.

Although e-business has caused some companies to recognize the revenue potential of the network — rather than categorizing it as overhead — such thinking isn't yet the norm. But no one today refutes the business importance of applications because

people understand a programmer's impact better than they do a network professional's, whose work is hidden in walls, wiring closets and data centers.

As Schiller puts it: "Application developers have more day-to-day interface with business managers. If you're on the infrastructure side, you wind up sitting in data centers. . . it's location, location, location."

Therefore, application folks appear more business-savvy and even better-educated than those pegged as infrastructure technicians, Grossman says.

This perception is a misconception, of course, as network professionals typically begin their careers with a bachelor's degree in a discipline such as electrical engineering, just as programmers begin with a bachelor's in computer science. And, like their programming counterparts, successful network professionals frequently earn graduate degrees in their fields or MBAs, or both (not to mention constant technical training). Gelman has a master's degree in electrical engineering in addition to his MBA. Still, while management better understands the network's worth today, it continues to undervalue the people overseeing that infrastructure.

"I'm not suggesting that the network is less important," Grossman says. "On the contrary, without an established network, applications wouldn't do any good. But it still remains that application people interface with the business more and form relationships. So when the question arises on who should be considered for promotion, the people known are the application people."

Some network executives who have achieved CIO jobs say the bias against network professionals can be justifiable. "Without understanding the business and the ensuing applications that drive the business, it is hard to justify moving the infrastructure side into the No. 1 slot," says a former CIO who requested anonymity.

He learned this the hard way. He landed the CIO job at a start-up technology company "despite my management experience being mostly infrastructure." But in a month, the start-up let him go, giving his responsibilities to someone with a development background. Of course, it would be unfair to say he lost his job so quickly because of his infrastructure background. But, he admits, his background failed to warn him that the company's business plan was poorly constructed.

The issue remains that the same measure of technical competency is not being applied equally to those from infrastructure as it is to those from development. The research numbers tell the story: More than one-third of the time programmers with no infrastructure experience land the role, while only one-fifth of the time a networking professional with significant application experience earns it, even though well-rounded experience would seem to be a better background.

Mounting a fight

Combating discrimination requires a two-pronged approach. First, you must gain the business skills necessary not just to be considered for the job, but to do it well. Then you must convince others that you have those skills.

Start by logging irrefutable business experience. You might consider earning an MBA. While our resume research wasn't conclusive on the topic, about half of the bios listed an MBA. Still, a business degree alone won't be enough.

"Companies hire people for what they have done, not for what they want to do," Grossman says.

That means cross-training. Seek ways to become involved with application development so you can work directly

with business managers. If this idea unsettles you because of the politics surrounding application development, perhaps a top technology spot at a corporation isn't for you, Czarnik says. Shouldering such politics is what an enterprise CIO does.

If you can take the politics but can't stomach application work, consider moving into the network vendor ranks, where a strong engineering background can be a good fit for top management positions, Czarnik suggests (see www.nwfusion.com, DocFinder: 5130).

Even development experience won't automatically land you a top management spot. You must also become your own public relations professional, Gelman advises. At every appropriate opportunity, flaunt your business skills. "Play to your strengths," he says. "Downplay the technology and play up budget management, negotiation, vendor management and project delivery."

Likewise, train yourself to discuss the infrastructure in business terms (the network upgrade saves X dollars annually by eliminating in-state long-distance charges), not technology terms (the network upgrade enables a converged IP network for inband telephony). You'll find an eager audience. Thanks to e-business, top executives are anxious to understand the business value of your work.

Another tactic is to reach for a CTO slot. This may be a career destination or a stepping stone to higher ranks, Schiller suggests (see www.nwfusion.com, DocFinder: 5142).

Discrimination against network professionals has been the dirty little secret few have been willing to discuss. But now that you know it's there, you can rise above. ▀

Go for CTO:

That's the advice of Gina Schiller, a CIO recruiting specialist with JB Homer Associates.

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CIO research For more results from our CIO resumé research, go to our You portal at www.nwfusion.com/you2001, DocFinder: 5132

New role Read about how the CTO job fits in. DocFinder 5143



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Your growing paycheck

Our 2001 Salary Survey shows that top network executive salaries have jumped 11% to \$108,100 and that waning bonus pay and stock benefits are of little concern.

BY SUZANNE GASPAR

"There's more to life than money" has become your mantra, results of the 2001 *Network World* Salary Survey reveal. Salary, bonuses and stock options are less valuable to you than flexible hours, challenging work and even job location, the survey found.

When the nearly 1,700 respondents ranked the most important reasons to change jobs, challenge of work, access to new technologies and training rated on par with compensation and benefits (see www.nwfusion.com, DocFinder: 5134). Not surprisingly, the likelihood of the company going public ranked last. And stock options were near the bottom, too, reflecting the stunning demise of the Internet IPO market.

Across the board, this year's survey, conducted by STAT Resources, reflects the fall-out from the weakening economy and the backlash of a troubled stock market and failing dot-coms. While top network executive pay was up 11%, the average 2001 salary increase for all networking titles was 7%, the same as last year.

But last year, annual bonuses increased 28% and stock options were up 24% compared with 1999 figures, pushing total compensation up 10%. This year, total compensation is up only 7% over last year, reflecting a smaller increase in bonuses (11%) and no increase in stock or stock options compared with last year (see charts, page 52).

But if the work conditions are right, IT workers will shrug off slowing financial gains.

If you ask LAN/WAN administrator Jeff Honnold what he likes about his company, he doesn't immediately talk about compensation.

Instead, he'll tell you about flexible hours and the fact

that AS Automotive Systems, a clutch reseller in Valley City, Ohio, gives him plenty of freedom to test new technology.

Such a friendly work environment will keep Honnold at his job, even though his base salary rose a modest 4.5% from last year, below that 7% average increase. His total compensation, including base salary, profit sharing and bonus pay, is about \$61,200, Honnold says. Because he works for a private company, he doesn't get stock options, but Honnold says he received a bonus this year and is happy with his compensation.

Similarly, Michael Danatos, vice president and director of e-commerce at Russ Berrie & Company in Oakland, N.J., says because of the uncertain economy, he is looking at an increase in base salary of less than 4% this year, compared to the actual 4% increase he received last year. "But my bonus should be on par, and the stocks... it all depends what the market does," Danatos says.

Jane Koppenheffer, CIO at Penn National Insurance in Harrisburg, Pa., says she expects a 7% increase in base salary this year, which is just about the same as last year. She also receives incentive pay.

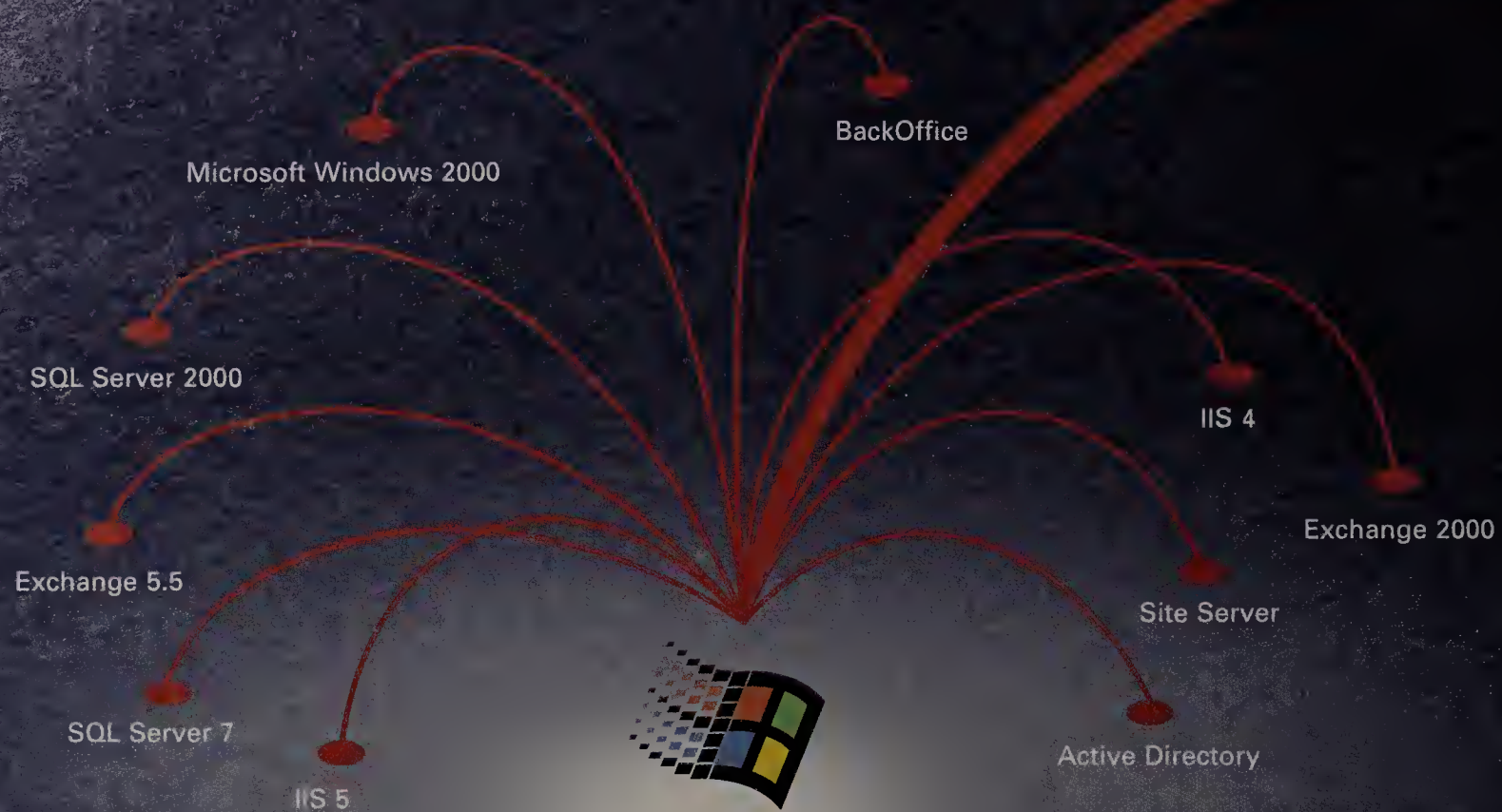
Another result of the fragile economy, Koppenheffer says, is that some new hires are asking for signing bonuses. Instead of granting them, she says, Penn takes the conservative approach by occasionally agreeing to conduct

See Salary, page 52

Jeff Honnold, a network staffer at AS Automotive Systems, loves his job because he gets to work with new technology and has a flexible schedule.

Standing proud:

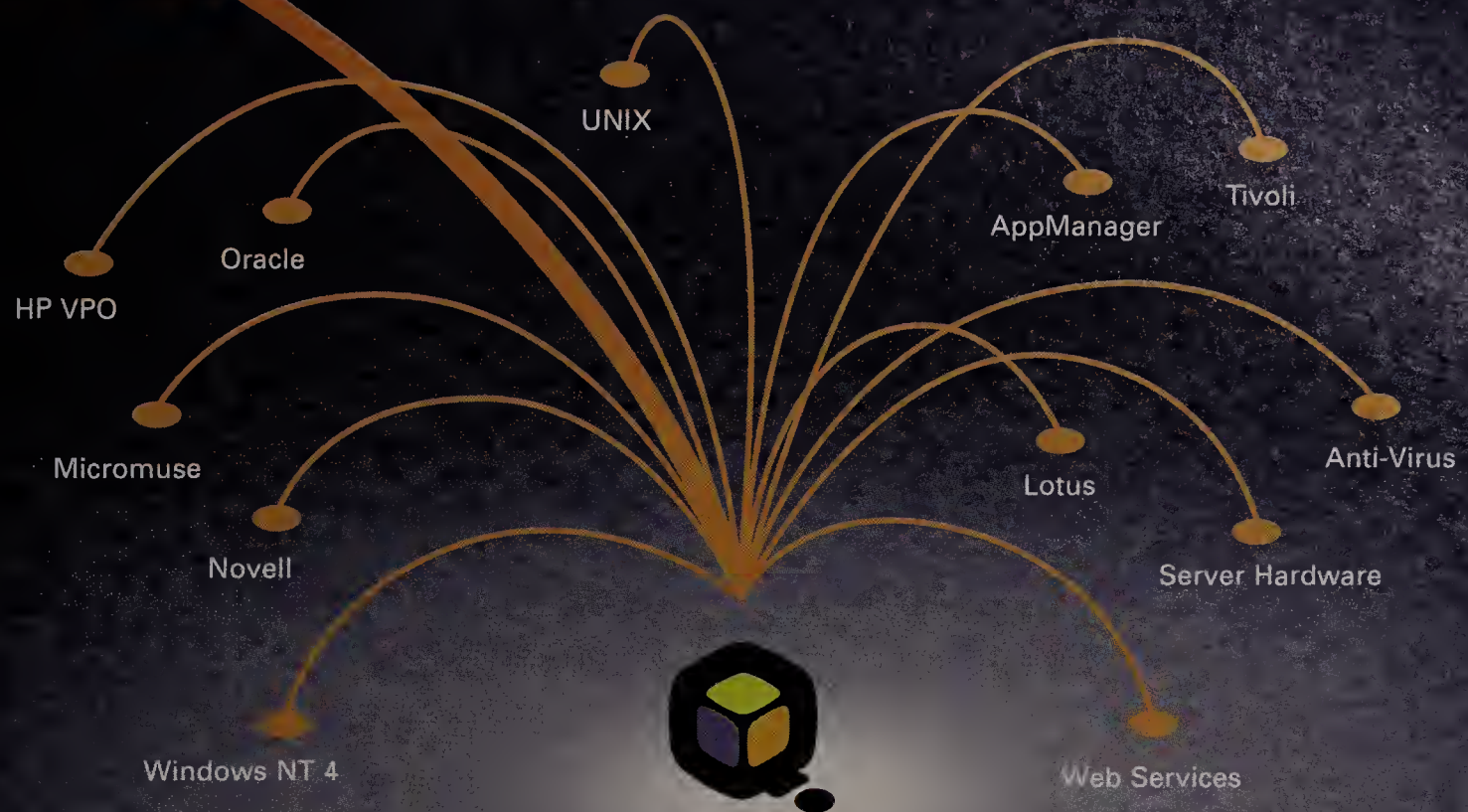
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Salary, continued from page 49

a performance review with the possibility of a salary adjustment at six months rather than waiting for the annual review.

Loyalty grows

The downturn in the economy has translated into a dramatic change in employee loyalty, according to survey results. The most dramatic shift occurred among top-level manage-

ment, including CIOs, senior vice presidents and IT executives. Loyalists tripled, from 8% last year to 25% this year, and explorers plummeted, from 55% to 19%. The percentage of people actively seeking jobs is down from 14%

in 2000 to 12% this year, and the percentage casually exploring job opportunities dropped from 43% to 36% (see www.nwfusion.com, DocFinder: 5135). The percentage of network professionals See **Salary**, page 56

Are you being compensated fairly?

WHILE FACTORS such as geography and industry type affect total compensation, the charts below give you a guide to average base salaries and total compensation. Jumping online to our Salary Calculator, found at www.nwfusion.com/you2001, DocFinder: 5133, will help you figure out exactly what you should be making.

Base salary

	2000 salary	2001 salary	Change	Percent change
ALL JOB CATEGORIES	\$65,300	\$69,900	\$4,600	7%
CORPORATE	\$95,400	\$104,500	\$9,100	10%
CIO	\$95,300	\$105,600	\$10,300	11%
Sr. VP, VP MIS/IT/IS/DP	\$97,700	\$108,100	\$10,400	11%
General corporate management	\$91,600	\$96,500	\$4,900	5%
MANAGER/DIRECTOR	\$68,600	\$73,200	\$4,600	7%
MIS/IT/IS/DP	\$67,500	\$72,100	\$4,600	7%
LAN/WAN networks	\$61,500	\$65,900	\$4,400	7%
Telecommunications	\$82,300	\$86,700	\$4,400	5%
Internet/intranet/e-commerce	\$83,800	\$89,500	\$5,700	7%
Other management	\$74,000	\$78,800	\$4,800	7%
STAFF	\$59,200	\$63,300	\$4,100	7%
Network architect/designer/analyst/database administrator	\$64,700	\$69,000	\$4,300	7%
Network operator/technician/other network operations staff	\$49,000	\$53,100	\$4,100	8%
Trainer/help desk/tech support	\$45,300	\$48,300	\$3,000	7%

Stock or stock options

	2000 stock	2001 stock	Change	Percent Change
ALL JOB CATEGORIES	\$2,000	\$2,000	\$0	0%
CORPORATE	\$6,900	\$8,200	\$1,300	19%
CIO	\$7,500	\$8,700	\$1,200	16%
Sr. VP, VP MIS/IT/IS/DP	\$4,900	\$7,100	\$2,200	45%
General corporate management	\$9,300	\$9,100	-\$200	-2%
MANAGER/DIRECTOR	\$1,500	\$1,700	\$200	13%
MIS/IT/IS/DP	\$900	\$1,000	\$100	11%
LAN/WAN networks	\$1,200	\$1,700	\$500	42%
Telecommunications	\$3,800	\$2,900	-\$900	-24%
Internet/intranet/e-commerce	\$2,600	\$2,900	\$300	12%
Other management	\$2,700	\$3,200	\$500	19%
STAFF	\$2,100	\$1,800	-\$300	-14%
Network architect/designer/analyst/database administrator	\$3,000	\$2,500	-\$500	-17%
Network operator/technician/other network operations staff	\$1,300	\$1,500	\$200	15%
Trainer/help desk/tech support	\$700	\$300	-\$400	-57%
Other staff	\$1,700	\$900	\$800	-47%

Bonuses

	2000 bonus	2001 bonus	Change	Percent change
ALL JOB CATEGORIES	\$4,400	\$4,900	\$500	11%
CORPORATE	\$14,900	\$17,800	\$2,900	20%
CIO	\$14,700	\$15,500	\$800	5%
Sr. VP, VP MIS/IT/IS/DP	\$18,000	\$23,500	\$5,500	5%
General corporate management	\$9,800	\$11,900	\$2,100	21%
MANAGER/DIRECTOR	\$4,600	\$5,100	\$500	11%
MIS/IT/IS/DP	\$4,100	\$4,500	\$400	10%
LAN/WAN networks	\$3,400	\$3,200	-\$200	-6%
Telecommunications	\$8,800	\$9,300	\$500	6%
Internet/intranet/e-commerce	\$7,900	\$9,300	\$1,400	18%
Other management	\$5,800	\$7,200	\$1,400	24%
STAFF	\$3,300	\$3,500	\$200	6%
Network architect/designer/analyst/database administrator	\$3,600	\$3,500	-\$100	-3%
Network operator/technician/other network operations staff	\$1,900	\$2,100	\$200	11%
Trainer/help desk/tech support	\$1,400	\$1,900	\$500	36%

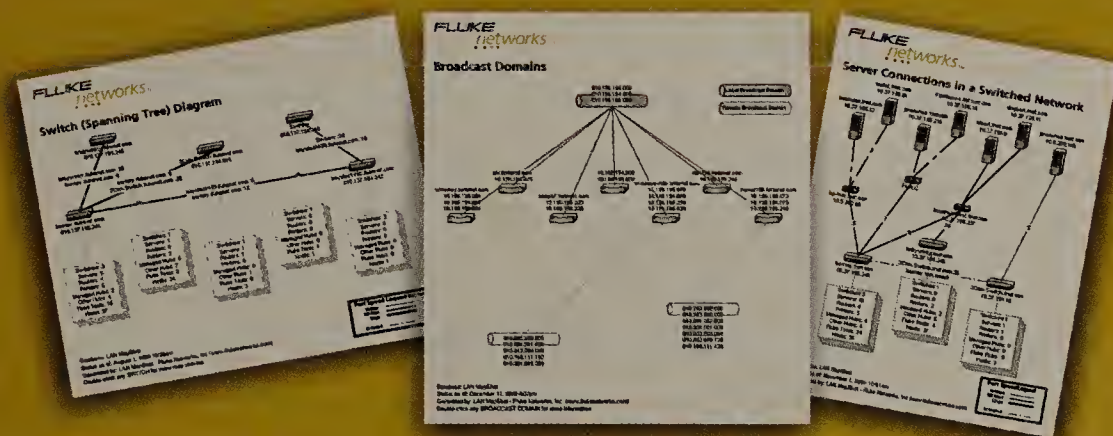
Total compensation

	2000 total	2001 total	Change	Percent change
ALL JOB CATEGORIES	\$72,900	\$77,900	\$5,000	7%
CORPORATE	\$120,400	\$135,100	\$14,700	12%
CIO	\$119,500	\$132,000	\$12,500	11%
Sr. VP, VP MIS/IT/IS/DP	\$123,400	\$145,000	\$21,600	18%
General corporate management	\$116,600	\$123,300	\$6,700	6%
MANAGER/DIRECTOR	\$75,700	\$81,000	\$5,300	7%
MIS/IT/IS/DP	\$73,100	\$78,500	\$5,400	7%
LAN/WAN networks	\$66,900	\$71,500	\$4,600	7%
Telecommunications	\$96,300	\$100,400	\$4,100	4%
Internet/intranet/e-commerce	\$94,600	\$102,300	\$7,700	8%
Other management	\$84,800	\$90,500	\$5,700	7%
STAFF	\$65,700	\$69,600	\$3,900	6%
Network architect/designer/analyst/database administrator	\$72,300	\$75,900	\$3,600	5%
Network operator/technician/other network operations staff	\$53,800	\$57,700	\$3,900	7%
Trainer/help desk/tech support	\$48,000	\$51,000	\$3,000	6%
Other staff	\$71,800	\$76,600	\$4,800	7%

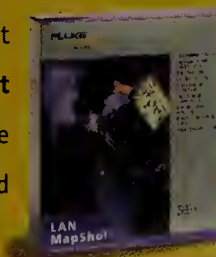




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Salary, continued from page 52

sionals who are loyal to their companies and not approachable edged up from 10% to 15%.

Julie Gerst, systems administrator at Answer Financial, an insurance company in Encino, Calif., says in today's economic climate, "Everybody just wants a paycheck and some stability. I'd like to know that I'm still going to have a job in six months."

Despite uncertainty in today's job market, networking is still the place to be. With the 7% increase in total compensation, the average network worker is making \$77,900 this year, up from \$72,900 last year.

To put that in perspective, the Bureau of Labor Statistics reports that wages for all U.S. workers are up 3.4% over April 2000, with the average annual wage at \$25,304 per year.

The rich get richer

Top-level corporate managers racked up a 12% increase in total compensation this year over last, moving from \$120,400 to \$135,100. Their base salaries rose 10%, from \$95,400 in 2000 to \$104,500 this year.

Midlevel managers notched a 7% increase in total compensation, from \$75,700 to \$81,000 and just about the same percentage for their base salaries. Network staffers saw their total compensation increase by 6%, from \$65,700 to \$69,600, with their base salaries up 7%.

But base salaries vary widely, depending on your area of technical expertise. Midlevel managers in charge of LAN/WAN networks make an average of \$71,500 this year, while managers involved in the Web and e-commerce earn \$102,300, and telecom managers make \$100,400.

At the staff level, network architects earn \$75,900, network operators earn \$57,700, and trainers, help desk personnel and tech support people earn \$51,000 in total compensation.

When it comes to bonus compensation, senior executives are figuring on a 20% increase this year; managers and directors, an increase of 11%; and other network staff, a comparatively low 6%. For stock compensation, senior executives are banking on a 19% increase; managers and directors, 13%. However, other personnel are looking at an average loss of 14% compared with what they received last year.

AS Automotive's Honnold says top executives deserve the larger increases because they're in the line of fire, they put in long hours, and they put up with political and technical headaches. When senior vice presidents put in new enterprise resource planning applications or e-commerce systems, they're sticking out their necks, so the compensation should be higher, Honnold says. "At my level, we're in the line of fire but we're not sticking our necks out as far."

Certification counts

Survey results show the average base salary for a

Cisco Certified Internetwork Expert (CCIE) is 40% higher than the base salary without it (see chart, page 57). Additionally, a Cisco Certified Network Associate earns 24% more in base salary, an Oracle Certified Professional earns 12% more and a Master Certified Novell Engineer brings in 10% more than someone without the certification.

While certification appears to translate into higher pay, executives say people who earn the most combine on-the-job skills with certifications.

Honnold says AS Automotive pays for employee education, including certifications. For him, the real value in getting a CCIE certification is the ability to troubleshoot Cisco switches more on his own and less with the help of outside consultants.

At Penn, few people have certifications, Koppenheffer says. Compensation isn't explicitly based on certification requirements, but rather is tied to specific job skills, she explains.

Darren Britsch, senior network security engineer for retail giant Nordstrom in Seattle, says security skills pay off. "You need to understand the concept of hacking along with network protocols, know [Windows] NT and security patches, be kind of a generalist," he says. Plus, he adds, you need a sound knowledge in engineering.

But Russ Berrie's Danatos says certifications aren't worth anything without experience to back them up. People pay \$6,000 to \$7,000 to get a certification, but that doesn't give them experience or applicable skills, he says. Out of the 100 people with certifications he's interviewed in the past eight years, Danatos says only 10% were qualified for the job because they had legitimate experience. "I can tell by talking to people if they've done things and can figure out how to fix problems," he says.

The places to be

If you want to earn the most money, you should be working in the computer/IT manufacturing industry, which boasts an average salary of \$97,500; IT consulting, which pays \$86,500; or the hospitality, entertainment and recreation field, which pays \$85,500 (see chart, page 57).

Several industries pay a base salary that averages more than \$70,000. These include financial services, insurance, real estate, legal services, transportation and utilities.

Koppenheffer says businesses need to set a premium on technical skills for implementing technology, given that technology is changing business models. Penn is moving internal business processes online so independent insurance agents can prepare quotes and policies, and customers can make simple policy changes and access billing information.

Not surprisingly, IT workers in the education, government and nonprofit sectors are paid the least.

Expected 2001 base salary by region



Conservative thinker.

Penn National Insurance CIO Jane Koppenheffer turns down new hire requests for signing bonuses.

When salaries are broken down by geography, it's clear that IT professionals make more money if they work in New

England, where the average base salary for network professionals is \$82,700, or in the Pacific Coast region, where it's \$75,900 (see map, page 56). That doesn't matter to Honnold, who says his family likes the low cost of living in Ohio, where the average IT salary is \$65,400, according to the survey.

But no matter what region of the country you're located in, jobs in

metropolitan areas pay more than those in rural areas. In Seattle, with its strong competitive retail market, some larger retailers making the technical shift to business-to-business e-commerce have been forced to pay higher IT salaries. Nordstrom offers matching 401(k) plans, good vacation benefits and liberal sick time. Britsch says he expects a 10% increase in his compensation, depend-

ing on how well the company performs this year.

While Britsch says he wants to get paid what he's worth, most important to him is the flexibility he has to dictate his own hours. "That's what I look for in the job, as long as I'm in to fix what's broke." ■

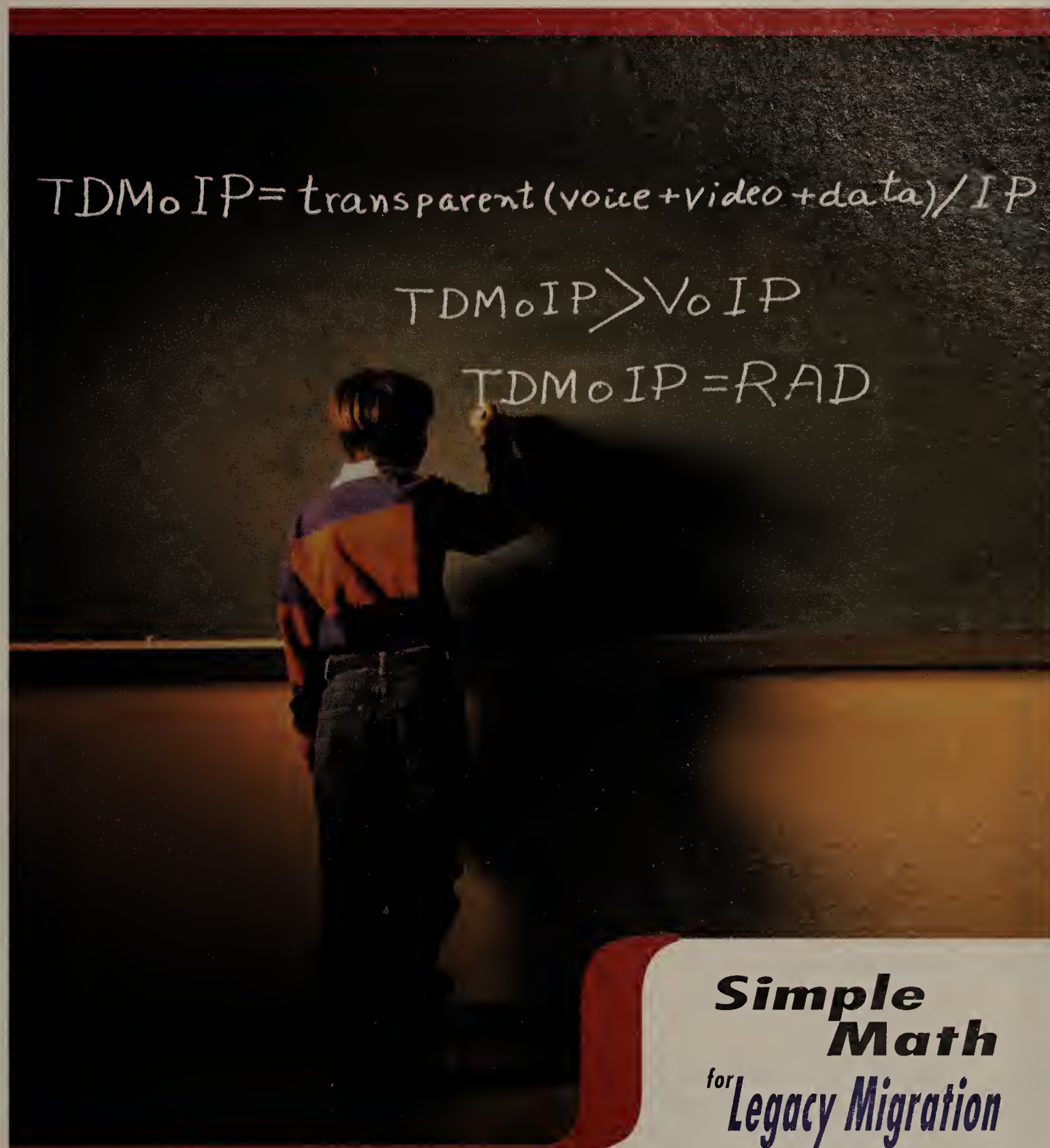
**Your
SALARY**

Certification & base salary

	Average base salary with certification
Cisco Certified Internetwork Expert	\$97,600
Cisco Certified Network Associate	\$74,900
Cisco Certified Network Professional	\$86,200
Microsoft Certified Database Administrator	\$75,400
Microsoft Certified Professional	\$63,600
Microsoft Certified Systems Engineer	\$69,000
Novell Certified Network Administrator	\$61,600
Certified Novell Engineer	\$70,300
Master Certified Novell Engineer	\$77,000
Oracle Certified Professional	\$78,000
Other professional certification	\$68,600

Salary by industry type

	2001 salary
ALL INDUSTRY TYPES	\$69,900
Computer/IT manufacturing	\$97,500
IT consulting	\$86,500
Hospitality/entertainment/recreation	\$85,500
Computer-related software or services	\$80,600
Finance/banking	\$75,100
Utilities	\$74,100
Transportation	\$72,600
Insurance/real estate/legal services	\$72,300
Retail/wholesale/trade/business services	\$69,600
Process industries	\$68,000
Media/TV/cable/radio/print	\$66,800
Manufacturing	\$66,700
Military	\$65,900
IT retail/wholesale	\$65,400
Healthcare services	\$63,000
Government	\$60,900
Nonprofit	\$58,000
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Training	\$55,700



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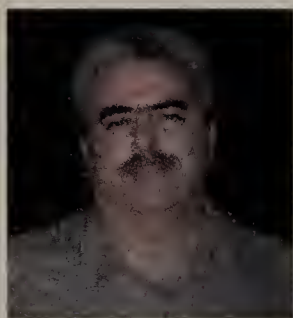
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Western Telematic Inc. (WTI) is an industry leader in designing, manufacturing and marketing of data connectivity solutions. WTI's current product offering includes the NetReach line of remote site management hardware. The products consist of cost-effective terminal server alternatives, Telnet and dial-up network power switches and secure modems for remote dial-up management. In 1975 long time company executive, David Morrison, took over as President. Mr. Morrison continues to successfully guide WTI through his cutting-edge commitment to research and development.



Roy Zisapel
President & CEO

Radware

(888) 234-5763

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Harold Kester
CTO

Websense, Inc.

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www.websense.com

Harold Kester is chief technology officer and vice president of database operations for Websense, Inc. Under Kester's direction, Websense has developed the adaptive learning technology tools used to build Websense's proprietary Master Database — the largest, most accurate database of categorized Internet sites in the Employee Internet Management (EIM) market.

How to reward your employees

Ironically, incentive programs frequently lead to discontent. Here's how to reward your IT staff effectively.

BY JULIE BORT

You stare at the latest set of project timelines and rub your chin. You see no alternative — your staff members will have to pull some late nights to meet this deadline. But you'll make sure they know how much you appreciate their efforts by telling them they'll get a juicy cash bonus for meeting or exceeding the tight deadline. You smile with self-satisfaction at this surefire incentive.

But what seems like obvious good management is a cobra in a straw basket. Only the most carefully thought-out reward and incentive program works like a charm. In all other cases you're heading for a poisonous bite.

"Don't look toward cash incentives to motivate employees. Money raises expectations that if they do X, they get X dollars. If it doesn't happen the second or third time around, employees get dissatisfied," says Kathe Farris, president of The Recognition Practice, an incentive program consulting firm.

Past experiences with poorly designed incentive programs taught this truth to Shirley Foster, vice president of engineering for Buzzsaw.com, an online site for the construction industry. She once had a boss who offered bonuses for long hours logged during big projects. Employees clocked in early and left late, but weren't always productive, she says.

On another occasion, the boss asked workers whether they wanted team or individual rewards, setting off a firestorm. Some said they'd be offended if the team got the prize if they worked hardest. Others said they wouldn't be motivated if they thought another would get the reward. So the company opted to scrap the reward program, frustrating everyone.

Some employment experts, including Alfie Kohn, author of *Punished by*



Rewards: The Trouble with Gold Stars, Incentive Plans, A's, Praise, and Other Bribes, are categorically down on incentive programs. Countless research shows that rewards routinely lead to poorer performance and employee dissatisfaction, he says. Like an addictive drug, the first reward works well but reactions alter over time. Employees think they're entitled, get discontented or feel like they're competing with one another. "This is not an argument against money. It's an argument against dangling prizes in front of people," he says.

Make it personal

Still, most experts say the merits of a well-executed reward and incentive program outweigh the risks. And, they say, implementing a successful reward program means following rules.

For instance, you should typically issue the honorarium after the fact, not use it as a carrot. Your reward must also be something desired by the employee. In an online survey of 55 *Network World* readers, respondents named gift certificates and similar cash equivalents as their favorite ways of being rewarded, but said they are happy with just about any recognition (see graphic).

Also be sure to let your employees contribute to the reward process. Encouraging them to send thank-you notes to each other, cc'd to you as the



manager, works well, Farris advises. You'll get a good idea of who has the respect of their peers.

Rewards also can't depend on frequency — don't give employees rewards because they haven't gotten one lately or skip others because they have. IT staff prefer a unique response to exceptional behavior, says Gary Dunham, database administrator for Water-Furnace International, a water furnace company in Fort Wayne, Ind. He recalls a brand-new company award his department earned for circumventing a systems crash. "It felt nice to be recognized, but now every month someone gets the award and it's not as big a deal."

Buzzsaw.com's Foster adds that rewards have become an important tool for her in this down economy. She takes pains to choose likable gifts and write thank-you notes by hand.

She also carefully balances group and individual recognition. When a team overperforms, she gives individual team members different, but similarly priced, gifts. Once she offered either time off or a year's prepaid home DSL line.

Foster also notes that a good perk one year might not be so hot the next. Today, for example, recognition and a sure career path handily beat out the stock options favored last year. ■

Perks that matter

An informal online survey of 55 *Network World* readers shows that IT professionals favor being rewarded with gift certificates and other cash equivalents and aren't too fond of group travel incentives.

INCENTIVES

	No. of respondents who like this type of reward			No. of respondents who ranked incentive as "Favorite"			No. of respondents who dislike this type of reward		
Gift certificates (retail or restaurant), gift checks, cash equivalents	16	22	11	16	22	11	16	22	11
Departmental travel (cruises, retreats)	10	8	23	10	8	23	10	8	23
Verbal recognition (cheering, announcements at company meetings)	9	26	11	9	26	11	9	26	11
Awards, written recognition (employee of the month, newsletter articles)	8	23	20	8	23	20	8	23	20
Tickets to professional sports events	8	15	10	8	15	10	8	15	10
Tickets to entertainment venues (theater, movies, concerts)	8	10	8	8	10	8	8	10	8
Parties, lunches, dinners	8	16	26	8	16	26	8	16	26
Corporate gifts with company logo	7	21	17	7	21	17	7	21	17
Other gifts (food baskets, framed photos)	7	10	14	7	10	14	7	10	14

SOURCE: NETWORK WORLD YOU 2001 SURVEY

Doing incentives right You want to motivate and reward your employees while avoiding the pitfalls of incentive programs. We've got a printable checklist that will help you do just that on our You portal. Go to www.nwfusion.com/you2001, DocFinder: 5125

Your JOB

Your insecurities

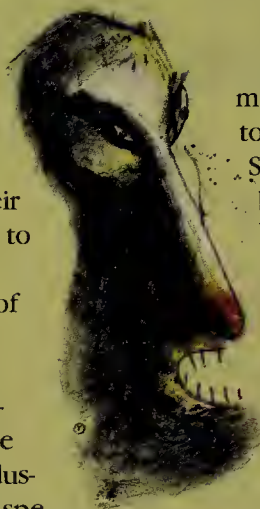
The threat of hackers has become the most worrisome part of your job, our annual Top Concerns survey reveals.

BY JULIE BOY

In the words of the great playwright Tennessee Williams, "We have to distrust each other. It's our only defense against betrayal." Indeed, defending your company from bad guys is currently your biggest worry, finds *Network World's* second annual Top Concerns survey.

To find out what's bugging you, we asked 100 network executives from large companies to rate their concerns using a scale of 1 to 10, with 10 equaling "most concerned." With the help of market research firm Research Concepts, we queried on four broad categories: technology, employee management, career and industry. Then, we looked into 45 specific topics, ranging from acquiring skills to implementing XML.

Of all concerns, "making sure the network was hackerproof" topped this year's list, with a mean of 8.13. The



more general "security issues" topic landed second, at 7.84.

Such worry is rooted in a double whammy, respondents told us. Network executives must protect customer and company data while staying abreast of changing technologies and threats. "Hacker-related problems are where most of the damage is done. Someone can break into our system and not only copy data, but also destroy or endanger our system," one respondent explained. Another said: "We deal with a lot of proprietary information. We've heard a lot of hor-

ror stories. We don't want to be another statistic."

This year, technology increased a notch on the overall concern scale, bringing it on par with employee management worries, which had been No. 1 in 2000. Forty-two percent of respondents named technology as the overall area that concerned them most, while another 42%, the same figure as last year, named management. In 2000, 38% named technology. Several readers told us that technology migration, particularly to Windows 2000, was causing the increased angst.

"Without a doubt, my greatest job concern revolves around Windows 2000 and switching to or implementing the new platform. There are major education and security ideas to be understood; there's the need to educate users on the new features. I will be the one to answer all their questions," one respondent described.

Likewise, 10% named career as the general area that most concerned them, while 6% said it was the network industry. Interestingly, in this age of layoffs, concern lessened over career this year, but rose over the state

of the network industry. In 2000, 15% named career most concerning and 3% named the industry.

This shift has less to do with rocky vendor financials than with the speed of industry change, respondents said. "Keeping up and getting ready for Windows XP and Active Directory, XML and the next wave of technology is my biggest concern," one participant summarized.

Third on your list of cares in 2001 is the item that ranked first last year: "finding and retaining qualified employees." The softening economy has loosened the job market, easing this headache, but not eliminating it, as indicated by the 7.72 concern rating. Still, that rating is significantly lower than last year's 8.36.

Recruiting distress has shifted from filling empty offices to making do with less. "My biggest concern revolves around staff shortages. I don't have enough people to do the work. I am not being allowed to fill vacancies. It's like a Catch-22," one respondent explained.

That also explains the correspondingly high concern ratings for all

Who's who

For our Top Concerns report, we surveyed 100 IT executives, each managers of people and technology.

Title	% of respondents
MIS/IS/IT/DP manager or director	33%
LAN, WAN or network manager or director	16%
Network architect, designer, database administrator	9%
Engineering manager/director	8%
Telecommunications manager or director	7%
Network operator, technician	7%
CIO/CTO	4%
Internet/intranet/e-commerce manager or director	4%
Senior vice president/vice president MIS/IT/IS/DP	3%
Other	9%

People and machines

Technology inches up to vie with employee management as your top overall concern.

Overall issue of most concern	% of respondents 2001	% of respondents 2000
Employee management	42%	42%
Technology	42%	38%
Career	10%	15%
Networking industry	6%	3%
Didn't know	0%	2%

SOURCE: NETWORK WORLD 2001 TOP CONCERNS SURVEY

Six on the rise

Your concern increased this year over last for only these six items.

Issue	Mean 2001	Mean 2000
Making sure the network is hackerproof	8.13	7.94
The career path generally available to you at end-user organizations	6.39	6.31
Supporting wireless devices	5.35	4.83
Managing outsourcing contracts	5.16	5.00
Finding outsourcers that can handle the tasks you'd like to off-load	4.76	4.70
Implementing and managing ASP services	4.22	4.18

SOURCE: NETWORK WORLD 2001 TOP CONCERNS SURVEY



things training-related. "Acquiring skills in new and emerging technologies" rated a 7.70. Close behind, at 7.68, loomed "keeping employees trained." "Maintaining skills in established technologies" followed at 7.42.

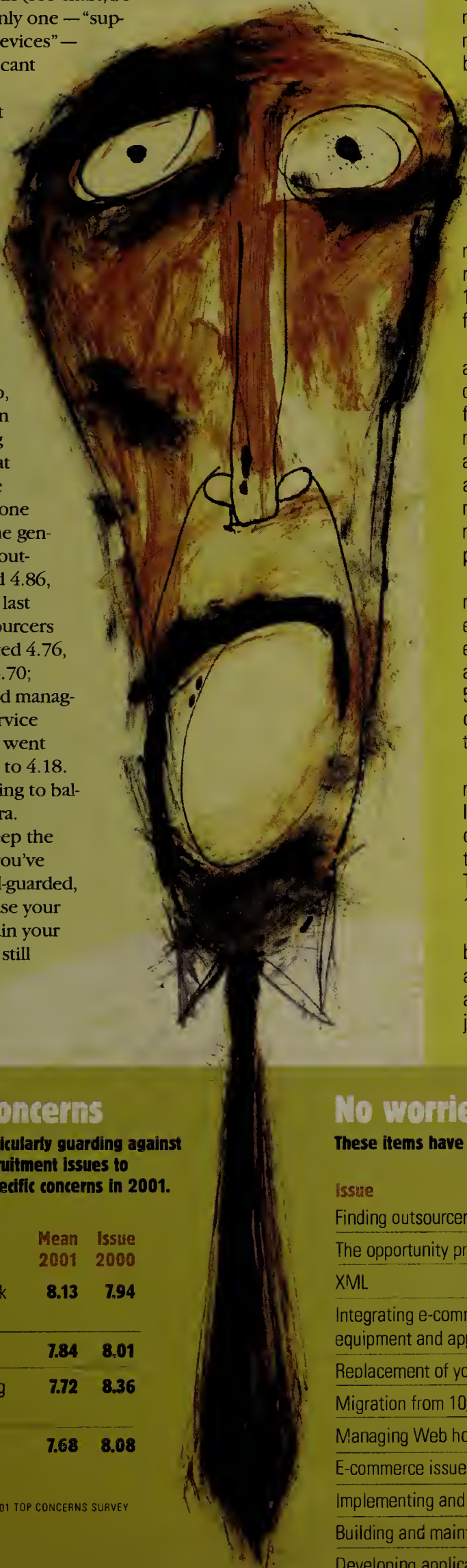
As one executive put it: "I don't want to get out of date at my critical level. People at my level tend to be complacent about keeping up with technology. I need to keep current with industry trends and developments."

Interestingly, you were less distressed this year than last year on all items, save six (see chart, below). Even then, only one — "supporting wireless devices" — registered a significant jump, to 5.35 this year from 4.83 last year. However, "developing applications for mobile devices" earned only a 4.00 rating, the lowest of all concerns.

Nearly all items relating to outsourcing were low on the list, too, with the exception of the outsourcing firm's security. That item ranked in the moderate-worry zone with a 6.15. But the general "outsourcing/out-tasking" issue rated 4.86, compared to 5.26 last year; finding outsourcers to handle tasks rated 4.76, similar to 2000's 4.70; "implementing and managing application service provider services" went from 4.22 in 2000 to 4.18.

All in all, returning to balance is your mantra.

You want to keep the Web technology you've implemented well-guarded, stay staffed, increase your technical skills, train your employees — and still make it home for dinner. ▣



Your top concerns

Security issues, particularly guarding against hackers, ousted recruitment issues to become your top specific concerns in 2001.

Mean	Mean 2001	Issue 2000
Making sure network is hackerproof	8.13	7.94
Security issues	7.84	8.01
Finding and retaining qualified employees	7.72	8.36
Keeping employees trained	7.68	8.08

SOURCE: NETWORK WORLD 2001 TOP CONCERNS SURVEY

No worries

These items have yet to become major concerns for you.

Issue	Mean 2001	Mean 2000
Finding outsourcers that can handle the tasks you'd like to off-load	4.76	4.70
The opportunity presented by employment at dot-com companies	4.75	5.17
XML	4.68	4.71
Integrating e-commerce applications with legacy network equipment and applications	4.54	5.37
Replacement of your networking staff with outsourced services	4.50	4.65
Migration from 10/100 Ethernet to Gigabit Ethernet	4.49	4.99
Managing Web hosting services	4.47	5.60
E-commerce issues	4.43	5.42
Implementing and managing ASP services	4.22	4.18
Building and maintaining supplier management systems	4.15	4.45
Developing applications for mobile devices	4.00	N/A

SOURCE: NETWORK WORLD 2001 TOP CONCERNS SURVEY

Sighs and silver linings

Despite the stormy economy, IT folks are less concerned about their jobs this year than last.

If today's stormy economy comes with a silver lining, it's the collective sigh of relief from IT. Business managers have learned that Internet infrastructures implemented at breakneck speeds will not magically generate growth. Consequently, sanity has begun to return to the IT project workload.

And so, despite the economic ills that have characterized 2001, *Network World* readers are not all that worried, according to a survey of 100 IT executives conducted for us by Research Concepts. The most telling statistic is a 1.08-point drop in the concern over balancing work and family. Clearly, IT workers are not especially frightened about being laid off and are actually happier that they needn't pull so many all-nighters on New Economy projects.

This drop is underscored by reduced concern over e-commerce in total. The e-commerce rating dropped about a point, to 4.43, from 5.42 last year. It ended up one of the lowest rated items on the survey.

Obviously, IT executives are now far less concerned about losing employees to vendors or dot-coms with stock options than they had been last year. The concern over this dropped 1.05 points, to 5.49.

But the real zinger is, troubled times or not, respondents are overall less concerned about every aspect of their jobs this year than last. Con-

cern lessened on all but six items (see chart, below). In fact, the mean concern rating of all 45 items dropped to 5.94, from 6.42 last year. Ahhhh!

— Julie Bort



Easy on your mind

You are significantly less concerned — meaning, by a half point or more — this year about 20 items.

ITEM	Mean 2001	Mean 2000
Acquiring and improving upon business skills	6.99	7.59
Building remote-access and site-to-site VPNs	5.90	6.44
Career development opportunities at your current company	6.43	7.32
Choosing between high pay and quality of life	6.88	7.96
Dealing with employees	7.18	7.87
E-commerce issues	4.43	5.42
Finding and retaining qualified employees	7.72	8.36
Having a reasonable number of qualified vendors	5.43	6.12
Implementing and managing public-key infrastructure systems	5.16	5.78
Integrating e-commerce applications with legacy network equipment and applications	4.54	5.37
Losing employees to vendors or dot-coms with options	5.49	6.54
Managing Web hosting services	4.47	5.60
Migration from 10/100 Ethernet to Gigabit Ethernet	4.49	4.99
Obtaining a competitive salary and benefits	6.84	7.47
Obtaining bonuses and stock options	5.83	6.65
Project management	7.11	7.82
Securing reasonable budgets for projects	7.02	7.66
Synching with departmental and corporate managers	6.53	7.28
Your career development	6.99	7.94
Your overall training	6.98	7.50

SOURCE: NETWORK WORLD 2001 TOP CONCERNS SURVEY



FUEFL

The YOU Issue

EXECUTIVE PROFILES



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You work where?

Our annual foray into the fascinating places you work takes us to the Air Force Research Laboratory, the World Wrestling Federation and Kennedy Space Center.

Making the military mightier

Jeffrey Pound, CTO of the Air Force Research Laboratory, helps keep the Air Force on the screaming edge.

BY BETH SCHULTZ

For most of his 42 years, Jeffrey Pound has lived in Dayton, Ohio, within a few minutes' drive of Wright-Patterson Air Force Base. Military aircraft from B-52s to F-16s piercing the skies have been as much a fixture in his life as hot, humid summers.

So in some respects, the fact that Pound has spent his entire IT career — 15 years — programming tests, designing infrastructure, planning network access and plotting security for the Air Force's premiere research and development laboratory comes as no surprise. Today, he serves as CTO of the Air Force Research Laboratory (AFRL), a \$2 billion technology wonderland charged with developing technologies for Air Force use.

Pound's work has helped scientists explore every aspect of the Air Force — its aircraft, pilots, missiles, defense information systems, space vehicles, you name it. His work has included writing control programs for tests that use hydraulics or sound to break aircraft parts, and provisioning and securing pipes that transport data collected in the AFRL's seven wind tunnels and many human effectiveness labs.

Ironical for a man who doesn't really like airplanes. But contrasts define this self-described odd bird nesting among the research scientist population at the AFRL. "I'm a flaming extrovert in a place full of introverts," he says, laughing.

The passions that landed Pound at Wright-Patterson are computers and engineering. "I've wanted to be an engineer as far back as I can remember," he says. "My mom even says that when I turned 2, she gave me extension cords as part of my birthday present, and that I was ecstatic!"

Pound's journey to AFRL CTO began in 1985, during

an internship writing computer programs for the Air Force's Air Vehicles researchers. "I was working on this multimillion-dollar test. . . . What an incredible summer!"

After taking a full-time position on June 20, 1988 — nine days after graduation and five days before getting married — Pound did down-and-dirty programming for years, then became a computer integration engineer and, eventually, CIO of the Air Vehicles Directorate, a \$100 million organization now under the AFRL's wing. This prepared him well to become CTO of the AFRL, one of the highest ranking IT executives on base.

"Some people questioned why I'd go from CIO to CTO, but more important is that I went from being CIO of a \$100 million organization to CTO of a \$2 billion-plus organization. That's a lot more influence," Pound says proudly.

From glass to glass

As AFRL CTO, Pound's authority reaches from "glass to glass — from the fiber the base provides, to the desktop the user looks at," he says. He provides the computing environment for AFRL's 5,400 full-time civilian and military workers, plus another 2,500 to 3,500 contractors and unspecified numbers of summer interns. Pound says he always builds for 10,000 seats.

Those seats are extremely varied, from computers outfitted to handle basic office and administrative functions to those with almost any

On a lot of things, we're out on the screaming edge.

— Jeffrey Pound, CTO of the Air Force Research Laboratory

Your
JOB

like computing power crunching colossal volumes of sensitive research data. Such diversity makes standardizing on a desktop environment difficult, but AFRL uses Microsoft Office and Windows 2000 widely. And in the fall, Pound will oversee a large-scale Active Directory pilot.

Beyond the basics, Pound leaves most desktop decisions to the CTOs at AFRL's 10 technical directorates—Air Vehicles, Directed Energy, Human Effectiveness, Information, Materials and Manufacturing, Munitions, Propulsion, Sensors, Space Vehicles and the Air Force Office of Scientific Research. While Pound doesn't directly oversee these CTOs, he chairs the CTO Council, a team that deals with technical IT

issues for AFRL. The council meets every two weeks, via videoconferencing for those at the seven other bases where the AFRL has facilities. In turn, all CTOs advise their CIOs, who make business decisions based on the input.

User diversity also means Pound needs a full complement of network connections. A researcher might have a 100M-bit/sec Ethernet link, a Gigabit Ethernet connection or an OC-3 pipe to the desktop, for example.

To support those varied connections, AFRL uses an ATM mesh in some spots and an FDDI metropolitan-area network elsewhere. At last count, Pound says, about 70 Cisco 7000 class routers were in use.

Data leaving the base travels over an

OC-12 connection into the Defense Research and Engineering Network (DREN). DREN is an AT&T OC-48 ATM cloud connecting the eight AFRL bases and other Department of Defense sites involved in high-performance computing. As the Air Force's majority user of DREN, AFRL must make sure the network can securely support the Air Force's future bandwidth needs, Pound says.

AFRL's Information Directorate alone says it will need in excess of 2,000 gigaflop years of computing power next year and 23,000 gigaflop years by 2006, just on the unclassified side. That 2002 figure exceeds the current capacity requirements of the Air Force as a whole, he says.

"We're not talking about the kind of high-speed computing most people think of as high-performance," Pound says. "We're way, way out there. Everybody knows the leading edge and that in front of that is the bleeding edge. But on a lot of things, we're out on the screaming edge."

It all adds up to a cool job, albeit not the highest paid. But Pound isn't concerned about salary right now.

"I know this sounds hokey," he says, "but I'm paying Uncle Sam back for being able to live in a country where you can choose what you want to do, where we can have open conversations." ▣

Your
JOB

Serving up smackdowns

WWF New Media's Gerry Louw and his team use video to keep wrestling fans in the fold.

BY PAUL DESMOND

On a Monday in late April, Gerry Louw, CTO for World Wrestling Federation Entertainment's New Media Network, is sitting in his corner office, the one with the XFL Hitmen football shirt hanging on the hook and the four boxes containing Stone Cold Steve Austin electronic action figures perched on a top shelf. Louw is answering a reporter's questions when the phone rings. On the line is the New Media Network president, seeking figures on capital expenditures.

This would be wholly unremarkable if the person asking for those numbers wasn't Shane McMahon, also known as Shane-O Mac, professional wrestler. Shane is the son of Linda and Vince McMahon, founders of WWF Entertainment. He is also the man who the night before jumped from 50 feet above the ring to body-slam an opponent as part of the Backlash pay-per-view special. Shane, rather than just being happy he can still walk, is now concerned about budgets.

How weird is that?

Louw says he doesn't see McMahon as a superstar wrestler, even though he is. "I know him as Shane, and he's my boss and that's it," Louw says. "Although when you see him, it's like, 'How does your head feel after that knock with a chair?'"

While the nature of its business is certainly out of the ordinary, in many respects New Media Network and its parent company are not unlike other family businesses in which the principals wear many hats. The three McMahons, along with

Shane's sister Stephanie, are all involved in the entertainment and business sides of the house.

Like their wrestlers, the family faces a demanding schedule with lots of travel, given the 240 live events the WWF stages each year. But their work ethic apparently trickles down. Louw and his staffers go the extra mile, whether it's checking Web traffic statistics during a busy weekend or coming in at 6:30 a.m. to get some quiet time at work. Louw typically works from about 8:30 a.m. till 6:30 or 7 p.m., usually straight through lunch. Louw estimates he's only gone out for lunch about five times in two years.

New Media Network only has about 50



— Gerry Louw, CTO of WWF Entertainment's New Media Network, standing tall with his team.

"We wield a big stick."

employees, yet it is the

No. 1 independent provider of streaming media on the Internet, Louw says, with 8.5 million videostreams served each month, from about 60 Web sites.

Streaming media is key for WWF content. "Think of it as a sports soap opera," Louw says. As in a soap opera, a number of ever-changing story

lines progress simultaneously. Video clips, most about 50 seconds long, keep fans up to date.

Eight engineers who report to Louw make it all happen. They run a network of 40 Web, database and application servers, a combination of Sun E420s and Compaq ProLiant DL360s, all hosted at a Level 3 Communications site in New York. Traffic comes in via two 1G-bit/sec pipes, with load balancing provided by dual Alteon WebSystems Alteon 184 devices. A pair of Cisco Catalyst 6509 switches completes the hardware picture.

But it's the software that really makes WWF sites tick. Sites come and go to coincide with story lines, and the content on even the mainstay sites such as wwf.com and superstars.com changes rapidly. It's not uncommon to get a story-line change in advance of an event with less than a few hours notice. On top of that, the main wwf.com site is redesigned about twice per year to keep it fresh.

To deal with these changes, the New Media team developed a content management tool, dubbed Rapid Fire. The tool lets content developers quickly design and populate a site, taking the technology team out of that loop.

Louw says he knew nothing of WWF story lines, "nor was it a requirement," when he came on board two years ago. Now he says he needs to know enough so he can prepare for the traffic spikes that inevitably follow major pay-per-view events. Even a mention of the wwf.com site during the nine hours of weekly television programming the company produces can cause a spike from 10,000 to 100,000 users. To keep up, Louw is briefed weekly by the content team.

One gets the impression that Louw knows the content better than he lets on, referring to the story line of the previous night's pay-per-view special as "obviously very controversial." That event helped New Media set a new monthly high-water mark, with about 320 million page views. Given that each view comprises about 50 HTTP requests, that comes to 1.5 billion HTTP requests for the month.

"If I switch video players from Microsoft to Real, I can turn the market by 5%," Louw says. "We wield a big stick."

That he does, but for the most part Louw doesn't wield it when it comes to dealing with his staff. While Louw isn't afraid to say when he's not happy about a particular issue, he is genuinely appreciative of the work his staff does and tries to let them know it.

At the weekly Monday morning staff meeting, the first question for each of his staff is, "How was your weekend?" If he forgets to ask at the beginning, he apologizes before asking later. One of the topics this week is where to go for a staff weekend excursion. White-water rafting comes up, and Louw suggests parachuting. Then he goes off on a tangent about going to the running of the bulls in Pamplona, Spain, to mixed reviews. "Well, I'm going to the running of the bulls," he says. "You guys are invited."

Louw seems to go after everything full-bore. Ask him about his hobbies and he'll tell you he's "an extreme snowboarder wannabe," having taken up the sport this winter. Likewise, he's an "avid fly fisherman," having taken that up way back in 1999.

Maybe it's no surprise, then, that Louw can relate to the nearly rabid fan base that is the WWF's business. He's held high-profile IT positions before, including a stint as CTO of Agency.com, where he grew the technology team from two to 194 people. But the WWF is different, a realization driven home when he attended his first live event.

"To walk into a stadium where there are 30,000 fans and to see how they react to that content, and to realize we provide a service to them, it's an incredible feeling," Louw says. "It's an inherent belief here that we have a business because of the fans. The fans are No. 1. So the quality of service I deliver to those fans is key."

Desmond is editor of *ecomSecurity.com*, a security information source for IT managers, CIOs and business executives. He can be reached at paul_desmond@king-content.com.

Super-sized management challenge

Steve Kerney, network manager for NASA contractor United Space Alliance, keeps critical space shuttle launch systems running.

BY MICHAEL COONEY

From the moment you enter the Kennedy Space Center at Cape Canaveral, Fla., you're struck by its enormity.

After all, the first things you see are a 209-foot-by-110-foot painting of the U.S. flag — each star stretches 6 feet across — adorning one wall of a 525-foot-high space shuttle storage facility and a full-size model space shuttle jutting into the sky at the nearby visitors center.

As you might expect, enthusiasm for the space program is also supersized on this 6,000-acre facility. And 41-year-old network manager Steve Kerney exudes that spirit as much as anyone. "I can't begin to tell you how great it is to be part of the team that puts that bird [the space shuttle] into space," Kerney says, pointing toward the two massive 437-foot launch pads rising up from the surrounding wilderness.

Kerney works at Kennedy Space Center for NASA contractor United Space Alliance, currently with the four-man systems and network engineering group that runs the Enterprise Management System (EMS) at the Launch Control Center. EMS is critical in keeping the systems supporting shuttle launch operations up and running. A loss of service from a downed system would limit the launch team's ability to monitor the shuttle's health and

make it impossible to review historical data needed for troubleshooting.

Kerney has worked in network-related capacities at Kennedy for 13 years, the last three in the networks section of the space center's Systems Engineering and Integration Department.

Involvement in the space program is a childhood dream come true, Kerney says. "Being able to step outside my office building to watch and feel the space shuttle thunderously rise into the heavens! It's an awesome experience."

While Kerney always knew he wanted to be a big part of a space program, he didn't always have this one in mind. First came a passion for the TV show "Star Trek."

"I didn't want to be like Captain Kirk on 'Star Trek,' I



I can't begin to tell you how great it is to be part of the team that puts that bird [the space shuttle] into space.

— Steve Kerney, a network manager at Kennedy Space Center

wanted to *be* Captain Kirk," Kerney remembers. He even lists "Star Trek" among the main influences in his life, along with his parents, his four daughters and his church. "Star Trek" really planted the seed of adventure in me."

Down to earth

While Kerney's passion for the space program is huge, his office is a cramped

cube full of books, toys, network diagrams and training manuals. It's in a low-slung building that sits quite literally in the shadow of the monstrous space shuttle storage facility. From here, Kerney and his teammates develop system and network monitoring and management applications as well as provide technical support for the Central Operations Facility.

At this facility, housed at Launch Control Center, a variety of space shuttle processing systems run. These include the Shuttle Data Center, an ensemble of more than 100 powerful Unix computers that store data generated by the processing and launching of each shuttle mission.

When Kerney's not in his office, he's usually at the Launch Control Center,

which is replete with a floor-to-ceiling mural showing different aspects of space flight and a wall dedicated to flight insignia patches and plaques commemorating the space program from Apollo to the current space shuttle missions.

This facility is also home to a new United Space Alliance data center that houses the computers and personnel that monitor and manage the enterprise network that helps launch the space shuttle. That data center is a sparkling, state-of-the-art 10,000-square-foot facility.

Specifically, Kerney and his team support 500 developers and scientists working on applications used for the space shuttle.

They work on 150 Unix servers and 500 Unix, Windows and NT workstations, all of which are tied to the center's IP backbone by 10 Cisco and 3Com routers and several dozen LAN switches. The network primarily consists of copper and fiber links supporting 10M- and 100M-bit/sec Ethernet, and 802.1Q virtual LAN trunking.

Hewlett-Packard's OpenView is the primary management platform. Kerney uses HP's IT/Operations 5.3 for systems management and Network Node Manager 6.1 for discovering LAN devices. But he also uses Agilent Technologies' NetMetrix, Cisco's CiscoWorks and Spectrum applications for router and switch monitoring and management.

He says one of his challenges is getting these multiple management applications and vendors to work together.

However, an even bigger challenge is figuring out how to do more with less, Kerney says. For example, Kerney's group must use commercial off-the-shelf (COTS) software and hardware per terms of an agreement United Space Alliance struck with HP and other vendors a few years ago. That means no customized equipment or applications, Kerney says.

"COTS saves money, but causes interesting challenges," he notes. "We are expected to make COTS products work together."

Integration of people — engineers, operations and maintenance folks — is also an overarching and perhaps even larger goal, Kerney says. "There are no Lone Rangers here," he says.

"I was a network engineer before I became part of this team so I know what those guys need. I also work well with the folks in systems maintenance and the system administrators," Kerney says. "If I didn't understand their requirements, I don't know how I could be an effective network manager." ▀



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Your hidden talents

From photographers to origami makers, we talk to network professionals who have talents beyond WAN architecture and router management.

THE
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BY SUZANNE ASKREN

Network professionals, as with any group, are more than just the jobs they perform. They may not get much of a chance to show them during office hours, but many have hidden talents in the arts and beyond. Here we profile three IT masters who spend their off-hours pursuing other passions.

Looking through the heavy-metal lens

CIO by day, Megadeth photographer by night.

Those two seemingly opposing worlds make up the life of Adam Bielawski, CIO at DigitalCars.com, a car-buying service in Wheeling, Ill. Whenever he gets the chance, Bielawski grabs his Nikon N90 and hits the hard rock/heavy metal circuit in the Chicago area, photographing acts such as Megadeth, Iron Maiden, Pantera, Motörhead and Danzig. But it's not all fun: Photographers only get to take pictures during the first three songs of the set, and in Bielawski's case, he doesn't get paid.

"I consider myself a professional amateur," he says.

But Bielawski is trying to get into music entertainment photography, and *Midwest Beat* is his start. The magazine gives him concert passes and the opportunity to get published photos for the portfolio he uses to pitch national publications.

Bielawski says photography helps him round out his job at DigitalCars.com.

"Developers never really see what they're creating from the end-user's perspective; I see it from both sides. And I think learning it from both sides is probably one reason why I was chosen for my position here," he says.

On the mushroom trail

The remarkable thing about Dr. John Halamka is that he performs his primary job as CIO for Care-Group Health Systems in Boston while also practicing emergency medicine one shift

per month. Halamka, who has been interested in computers since his teens, knows 12 computer languages and has run a software development company, simply believes that IT and medicine are inseparable.

"It's next to impossible to design meaningful tools if you're not a technician, and by that I mean a nurse, pharmacist, doctor, etc.," says Halamka, who also happens to be associate dean of Harvard Medical School.

And, he's a mushroom expert! Sign up for a Boston Mycological Society mushroom walk on summer weekends and chances are Halamka will be leading the group. And, if Halamka's on duty when you come into the Beth Israel Deaconess Medical Center emergency room feeling sick after eating a mushroom, then he'll try narrowing it down to what type. After all, 35 of the 2,500 mushroom species in the U.S. can kill you, he notes.

Halamka became interested in mushrooms during medical school because of the different kinds he found in his backyard. He has endured hazards while hunting for mushrooms, including a mountain lion jumping over his head, but he wasn't ever in any real danger. And while his knowledge of mushrooms has obviously helped him in medicine, Halamka believes the thought process used in mushroom classification also goes with that used in programming. "You literally go through 50 different binary trees trying to classify a mushroom," he says.

The Zen of origami

If you have an encounter with Troy Tate, don't be surprised if he sends you away with paper in hand. But it won't just be any piece of paper. It'll be an intricately folded animal or insect, or modular boxes. It's just his way of giving out the designs he loves to create with origami, the Japanese art of paper folding.

Tate, network manager for CTS, an electronic components manufacturer in Elkhart, Ind., became interested in origami when he received a kit when he was about 10 years old. He took it up again four or five years ago because he wanted a hobby that didn't require much money and that could be done anywhere quietly.

"Paper is so plentiful, you can just use a piece of Laserjet or typing paper and cut it down," he says.

Tate finds insect designs the most challenging. "You're dealing with square paper

that has four corners and four sides, while an insect has six, eight or more legs. You have to create that out of one sheet of paper, without cutting or gluing," he says.

Those challenges, and the entire process of trying to create a design out of paper, are not that different from working in networking, says Tate, who is responsible for 40 servers that support 8,500 employees worldwide.

"It's the Zen of the paper and all that design waiting to come out," he says. "It's the same with computer systems. It's also linear — you start at a certain point, continue point by point, and come out with either a successful model or a somewhat less successful model. That's true with network troubleshooting."

Askren is a freelancer in Evanston, Ill.

John Halamka:
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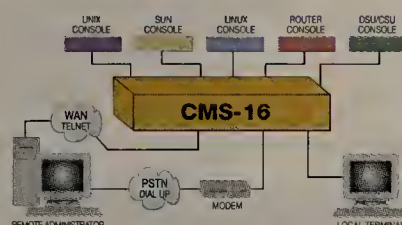
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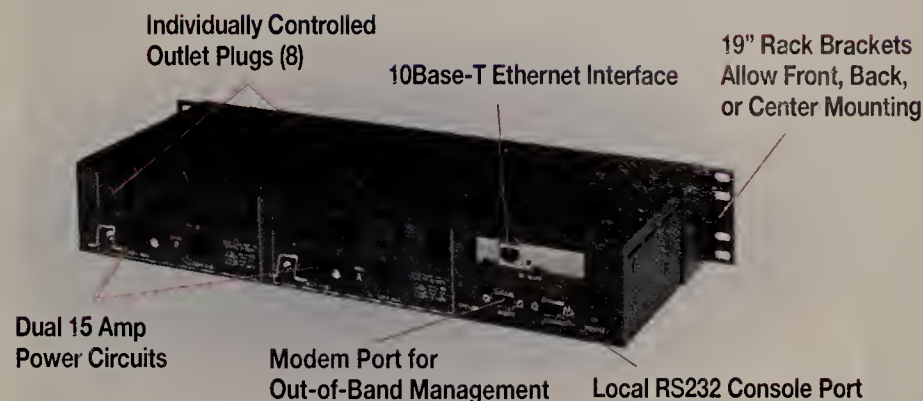


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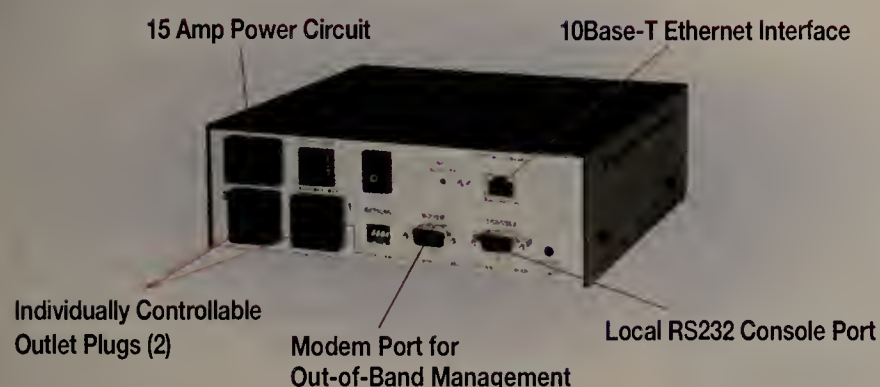
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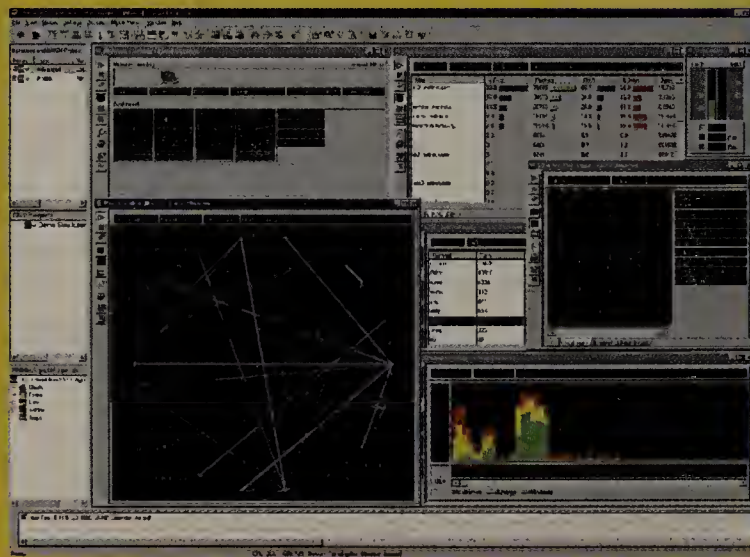


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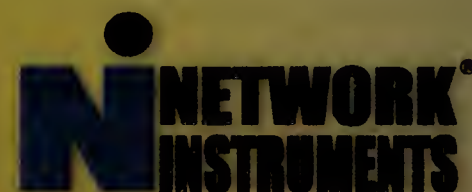
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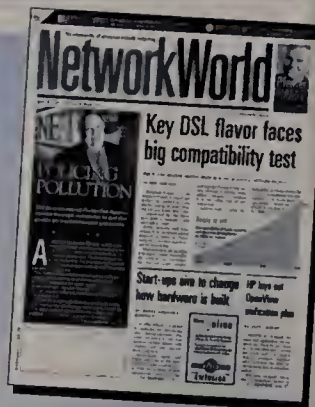
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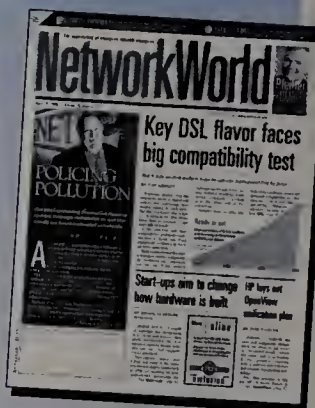
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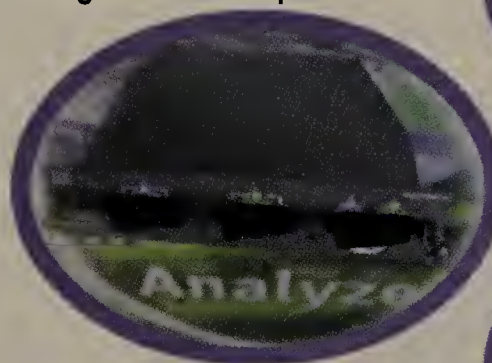
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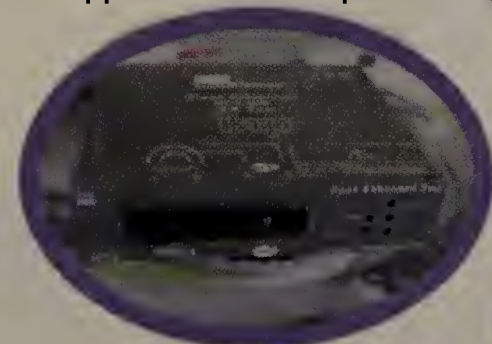
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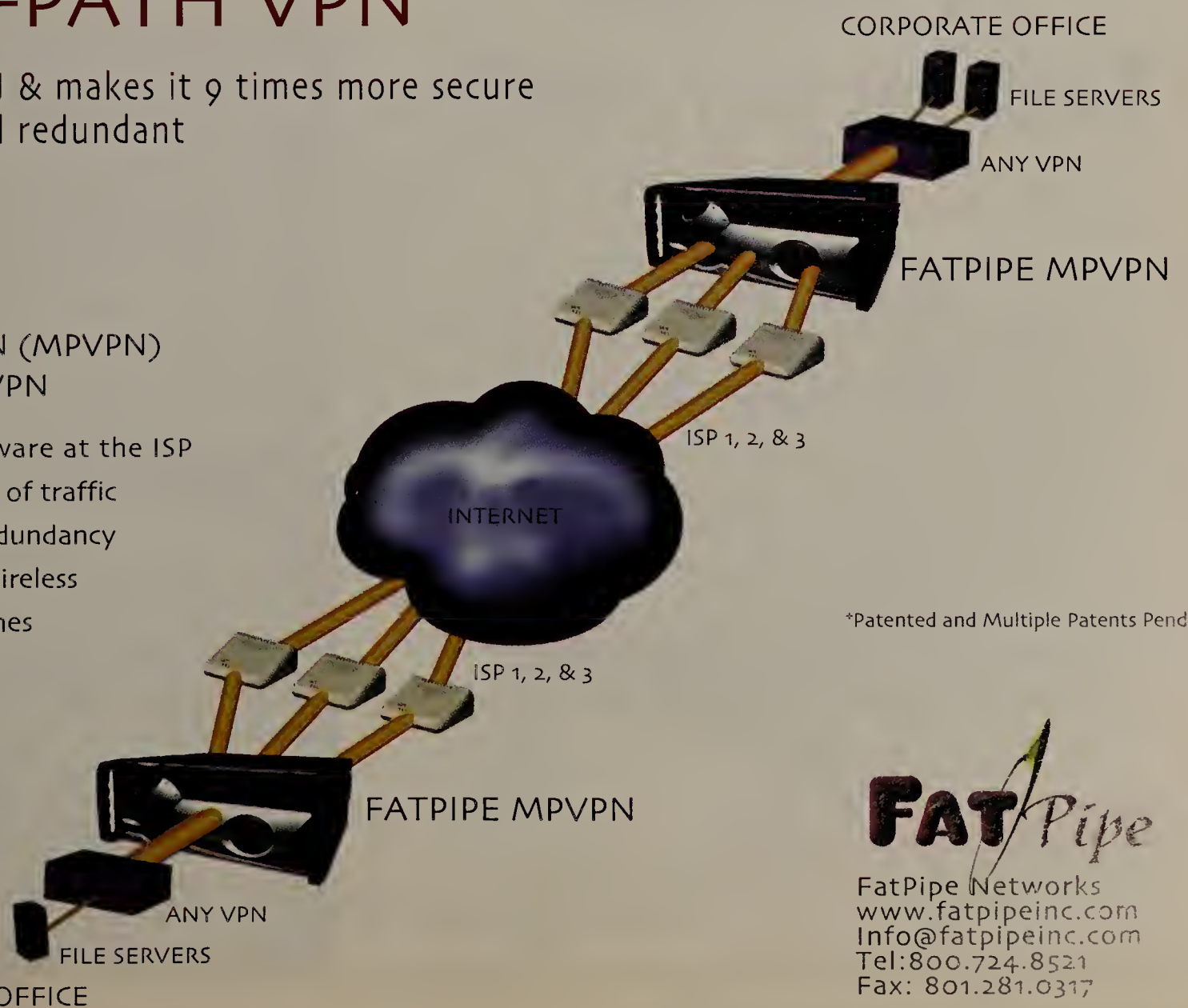
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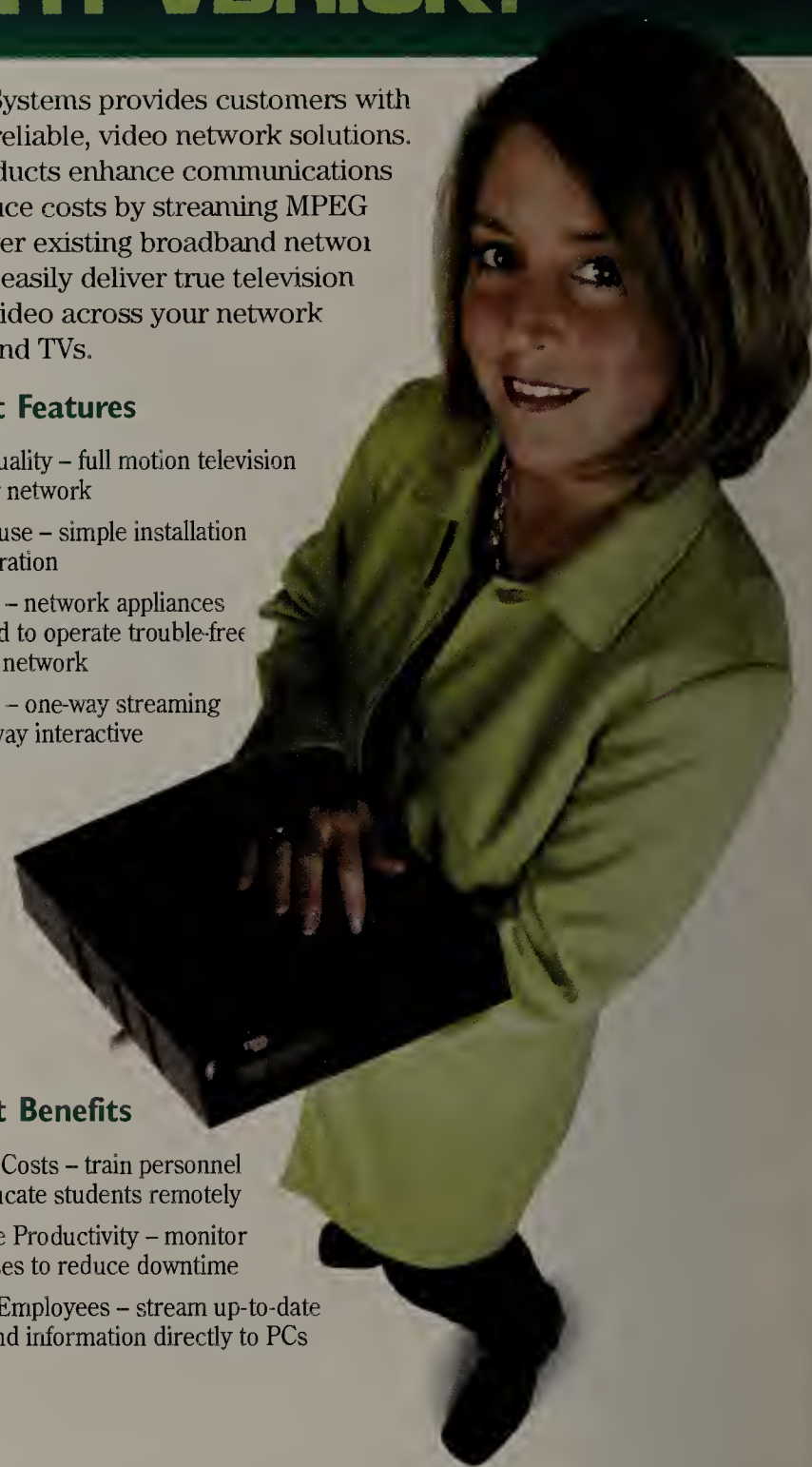
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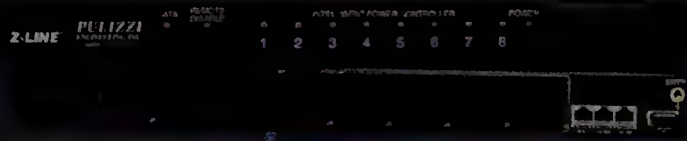
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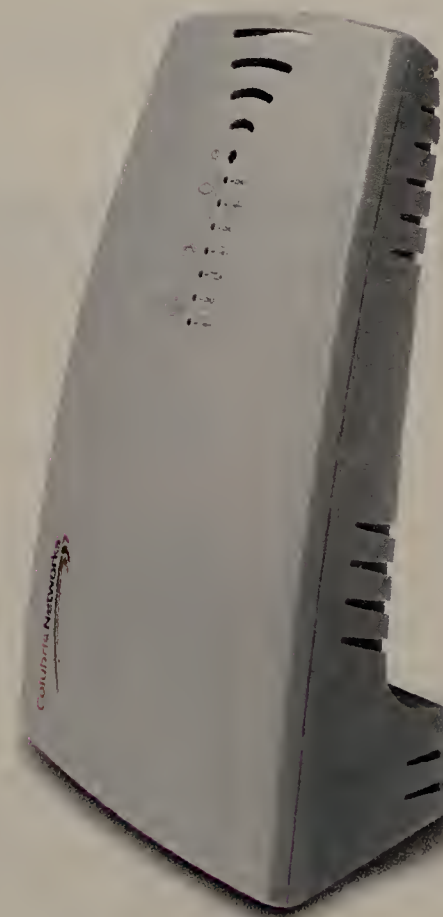


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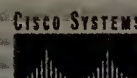
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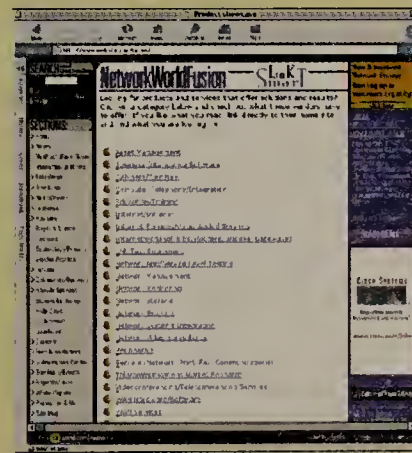


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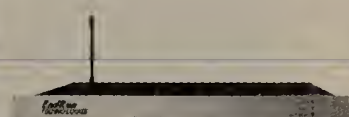
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F/T System Support Analyst responsible for maintaining internal local area network; maintaining remote-corporate (LA and Atlanta) communications network; troubleshooting hardware and software problems; interface with vendors to resolve problems using Dbase IV, DOS, Windows NT/95/98/2000, and Q Base. Other responsibilities include maintaining 2 interactive web sites in Chinese; act as webmaster; update and edit web contents; trouble-shoot user problems. Must have a Bachelor's in Computer Information Systems. Must have 3 yrs. of exp. a position w/same duties. Must be fluent in Chinese. Salary: \$39,897/yr. Send resume to: Max Liu, ADTH, Inc. 5388 New Peachtree Rd., Atlanta, GA 30341.

NETWORK ENGINEERS sought by IT consulting firm with locations in Chicago, IL and in NJ. Candidates must have a Bachelor's degree or equivalent in Comp. Sci., Business Adm. or related field and at least five years of experience in network management and/or administration. Send resume to: Joseph M. Triolo, Spherion Infrastructure Solutions Group, 9 Polito Drive, Lyndhurst, NJ 07071.

Programmer Analysts (multiple positions) sought by computer s/w consultancy firm in Yardley, PA. Must have Bach or equiv and one yr relevant exp. Respond to: HR Dept, Global Systems Technologies, Inc., 109 Floral Vale Blvd., Yardley, PA 19067.

CHIEF SOFTWARE APPLICATION DEVELOPER. Provides overall mgmt of strategic appl. planning, design and implementation projects for corp. clients as well as internal corp. sys. development projects, assumes the lead for developing company system development standards. Hours: 40/week-9 am to 5 pm. Salary: \$88,698.24/yr. Requires M.S. in Comp Sci. or related tech field plus 1 yr. exp. in job offered or 1 yr related database appl. sys dev. exp. Reply by resume only (2 copies) to: Case #20012904, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

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SW Eng'r: Research, dsgn, & dvlp eng'g sw sys w/ QA Run/Director, Load Runner, VB, Oracle & CICS; Dvlop Test Plan, Automate test Scripts, Stress test'g & analyze Test Result w/ QA Run/Track Rec'd, Load Runner, PVCS sys; Train users in sys use & provide tech. support. 40h/w, 8-5, BS in Eng'g/comp. related fields & 1-yr wk exp in any posi'n w/ QA Run/Director & Load Runner. Resume to P. Sharmila, Number Only, Inc. 21 Tech. Dr. #2, W. Lebanon, NH 03784
email:shamms@yahoo.com

Several computer related positions for large telecommunications consulting services company. Send resume to: Jennifer Smith, Sema, 6 Concourse Pkwy., Suite 2700, Atlanta, GA 30328.

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Programmer/Analyst wanted by PPD Inc. in NJ Office. Must have Masters deg in Comp Sci w/at least 2 yrs exp in clinical trials data related s/ ware analysis, dsgn & dvlpmt using SAS, PL/SQL, SQL, Oracle. Knowl & exp in large complex data systms & web technologies a+. Please send resume w/ref. code BM04 to Chris McLean, HR Dept, 3900 Paramount Pkwy, Morrisville, NC 27560 or email: hr-tp@rtp.ppd.com

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Semafor Technologies has multiple openings for S/W Engineers, Prog/Sys Analysts, DBAs, Proj Mgrs and Sys Admins to design / develop / administer software applications using various development tools, languages, database/internet/ wireless technologies on windows and UNIX platforms. Customize commercial business application. All positions require BS/MS or foreign equiv in Comp Sci, Math, Business, Sciences, Engg (any branch) or related field. Highly competitive salaries & benefits. Travel/relocation req. Resumes to: HR, 3300 Holcomb Bridge Rd, Ste 212, Norcross, GA 30092

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This position plans and administers computerized databases, including base definition, structure, documentation, long range requirements, and operational guidelines. Ensures accuracy and completeness of data in master files and various support tools. Establishes and maintains security and integrity controls. Recommends policies and procedures relating to database management. Assists engineers, developers, scientists and other staff in the use of information management and database technology by providing both technical support and database administrative support and services. Stays abreast of and promotes the use of information management technologies which will improve the quality and effectiveness of data management and development efforts.

Bachelor's degree in a technical discipline or equivalent experience in database administration is required. Significant experience and demonstrated ability in the administration of Microsoft Back Office products including NT Server and SQL Server required. Must possess excellent communication and organizational skills. Must be able to work with diverse group of people. Must be willing and able to go to sea for a specified duration.

Please send resume and cover letter to MBARI, Human Resources, 7700 Sandholdt Road, Moss Landing, CA, 95039-9644, fax to (831) 775-1620, or email to jobs@mbari.org.

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Requires: Bachelor's degree or equivalent with academic training in Systems Analysis and Applications Programming; four (4) years' experience in applications development, implementation, and maintenance in a manufacturing or engineering environment; SQL database skills (Oracle and Access preferred) in a UNIX/NT environment; experience with PowerHouse and Visual Basic software.

Salary: \$85,000 per year. Please direct all inquiries to Karen Hebert, Director of Human Resources.

khebert@spectra-inc.com or Spectra Inc., PO Box 68C Hanover, NH 03755

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IT Careers in Telecommunications/Wireless

While having information technology skills is a must in the telecommunications/wireless industry, just as important is knowledge of how the telecommunications industry works and what levers affect the business most.

"I tend to look for flexibility and adaptability, as well as knowledge of how telecom works," explains Alex Lederman, technical group lead for the e-business unit at **Verizon Communications** in Dallas. "We hire new graduates and experienced people, but what makes them stand apart is that knowledge of what is driving this industry." **Verizon** tends to recruit people with the latest technical skills to support the new business centers, including e-business.

For new college grads, **Verizon** has developed a systems architect development program. "This takes new graduates through 18 months of rotations throughout the company," says Lederman. "They

gain an understanding of all the technologies and projects before being assigned a lead position on their own projects."

Currently **Verizon** is working on a wide range of projects. Following the formation of the merged company, **Verizon** was required by the FCC to create a separate affiliate of its DSL, frame relay and broadband services. The IT group was responsible for developing the technology infrastructure enabling the business. "We had a time constraint for designing and



implementing a new operation support system, as well as integrating systems and building the links from scratch," Lederman says. In addition to building entirely new systems, IT professionals with **Verizon** are continuing to develop more and more customer-based services and developing new automated systems to drive down the cost of delivering service to customers.

"It may sound corny, but **Verizon** is providing a stable environment to IT professionals as well as the opportunity associated with always doing something new," Lederman says. "We aren't assigned to repetitive tasks. Plus we have the push of a big company to drive the future, influencing how technologies develop."

For more job opportunities with telecommunications/wireless firms, turn to the pages of *ITcareers*.

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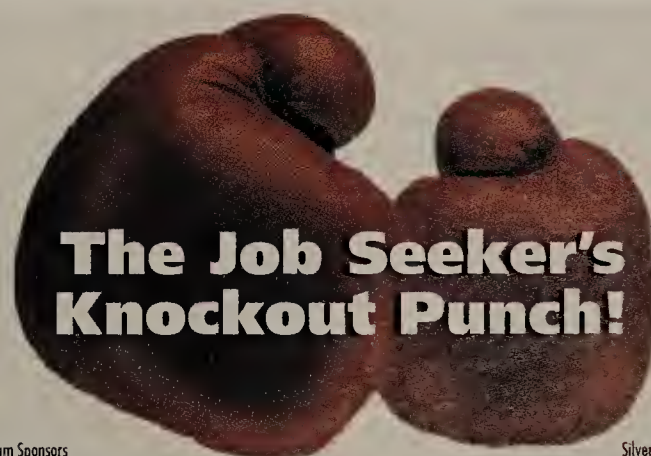
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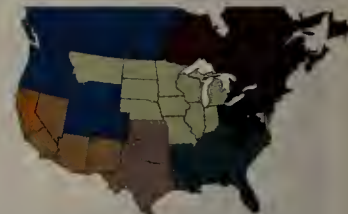
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is CIO of a \$3 billion company is spending his day laying people off," Stack says, adding that he is happy to retain his 20-person staff. "We may cut back on some contractors, but there will be no changes on the operational or network side of the house."



"We may cut back on some contractors, but there will be no changes on the operational or network side of the house."

Bob Stack, vice president of IS, NMS Communications

IT managers with money to spend say their purchases are getting more scrutiny from upper management.

"In better economic times, I'd walk in and get \$10,000 without explaining myself," says Chris Kozlov, network administrator at Arlington Industries, a Libertyville, Ill., distributor of imaging supplies. "Now I have to be more organized."

Kozlov's IT budget is up 20% this year. His three-person IT shop serves 150 employees.

"Even though the economy was suffering from a downturn, our company was up," Kozlov explains. "We just had the best quarter of our financial history. But it's always good to be conscious about what's going on in the rest of the IT industry."

Kozlov is making two major purchases this summer: a database reporting tool that end users can operate themselves,

and software for sending high-volume outbound faxes that will pay for itself on its fourth use. Both applications will get new, dedicated servers.

"We're moving ahead with IT projects that give us a fast rate of return or that help employees do their jobs quicker," he says.

Experiences like Kozlov's are why corporate IT spending projections remain high. In fact, Kozlov regularly fills out surveys for Gartner.

One area where IT managers and researchers agree is that corporate spending on hardware and software is declining, while outsourced IT services are on the rise. They also say internal staff comprise the largest component of corporate IT budgets.

"There's a tendency to assume that when hardware and software spending are

down, the dedication or focus on IT is down. We see no evidence of that," says Barbara Gomolski, a Gartner research director.

"We aren't getting harried calls from our clients saying they have to slice 25% of their IT budget," she adds. "What we did see in the last six months was an increased focus on . . . justifying IT expenses."

However, Merrill Lynch asserts in its TechStrat survey released July 10 that "this appears to be a global IT recession. The question now is when will the U.S. pick up?"

Gartner surveyed 589 corporate and government organizations between March and June. The Merrill Lynch survey of 65 U.S. and European CIOs was conducted in June.

The IDC survey is based on hundreds of interviews

"We're looking at it in the lab now. Some of the standards issues may push out the commercial availability though."

While operating with gear from one vendor causes no problems, Verizon wants to make sure different vendors' DWDM gear works together.

"It might work fine with equipment from one or two vendors," McDonough says. "But we need a multivendor environment. The more vendors we have confidence in, the better position we'll be in to package a deal that suits a customer's needs."

Another issue holding up a general Gigabit Ethernet rollout is coming up with a system to manage it and that hooks into Verizon's operational support system (OSS). Compatibility with OSSes could be a big issue for RBOCs.

The smaller Gigabit Ethernet providers all have OSSes that let customers order more bandwidth on the fly and that may not be easy for the RBOCs to emulate. ■

with IT buyers and suppliers worldwide.

The optimistic Gartner survey said 57% of respondents plan to increase IT spending while 21% plan decreases. The average decrease was 12.7%.

Gartner reports a wide disparity in IT budget trends among various industries. The most bullish sector was government,

which plans to increase its IT budget as a percent of overall budget by 18% between 2000 and 2002. Harder hit industries include utilities, which plan to reduce their IT budgets as a percentage of revenue by 15%, and construction companies, which plan reductions of 13.5%.

IT capital budgets, which include network hardware and software purchases, are being hit harder than operating budgets. Among the industries cutting IT capital spending most dramatically are the utilities and petroleum segments, while health care companies and banks project increases.

"We're seeing the deferral of new projects rather than the cutting back on the existing infrastructure," says Gartner analyst Jeremy Grigg.

In the gloomier Merrill Lynch survey, 72% of CIOs polled expect their IT spending to remain tight during the second half of the year. These CIOs report more pressure from their CFOs to quantify the return on IT investments.

Still, all 65 CIOs said companies must continue to invest in e-business initiatives that involve adding Web front-ends to key business processes.

"Webification is one of our long-term tech trends in part because CIOs keep listing it as strategic despite current budget woes," Merrill Lynch stated.

IDC predicts the U.S. IT market will rebound next year and experience 10% growth, as long as the U.S. doesn't fall into a recession. ■

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Ethernet, continued from page 14

service, but unlike Qwest's, which allows companies to connect two buildings in separate cities, SBC's offering is a point-to-point metropolitan Ethernet service called GigaMAN.

SBC offered GigaMAN last year by saying the service cost would be about 2.5 times the price of a DS-3 (45M bit/sec) but offered significantly more bandwidth.

SBC is preparing to make more announcements about metropolitan Ethernet services in the near future, but refused to comment further.

BellSouth, which offers transparent LAN services in 35 metropolitan areas across nine states, is also on the verge of rolling out a tariffed Gigabit Ethernet service, says Chris Noll, a research director with the service provider.

The company is also taking a serious look at dense wavelength division multiplexing

(DWDM) gear for interoffice routes, so BellSouth wouldn't need dedicated fibers between each office. Passive WDM connections to customer premises, which would allow corporate users to run multiple Ethernet services over one fiber pair, are also under consideration.

The one thing BellSouth would like to see improve before making a big Gigabit Ethernet services push is the ability to fail over to another route in the case of a link outage. Currently, Ethernet technology can't fail over as quickly as SONET, but standards bodies such as the IEEE and the recently launched Metro Ethernet Forum are looking at making improvements, Noll says.

Like BellSouth, Verizon would like to see more standards work done before it commits to Gigabit Ethernet in the metropolitan area, says Emmett McDonough, director of advanced optical solutions for Verizon Enterprise Solutions Group.

"We feel the technology is close to being ready," he says.

AperServ, continued from page 10

more than 60 service providers AperServ can monitor. The agents send performance data, such as packet loss and network latency, to a central database.

AperServ customers do not buy any hardware or software. They can view performance data in Web-based reports, which can be accessed via the Internet or a VPN, depending on the level of security desired. With TIM, the hardware and software reside within a customer's network to monitor its intranet.

Brainbench's Gruninger says AperServ works entirely outside of his company's network and doesn't affect the internal performance. "It doesn't skew our bandwidth data having this service measuring us," he says.

AperServ's services are available for a free 60-day trial. Following that, customers will have to pay a \$2,500 one-time configuration fee, and another one-time \$2,500 fee for SLA analysis and configuration. AperServ then charges \$500 to \$700 per agent per month for its enterprise services.

AperServ: www.aperserv.com

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Quick fixes for checks and dogs

TeleCheck — Making Checks Our Responsibility/“Creating the Future of Electronic Check Commerce”/ TeleCheck, a subsidiary of First Data Corporation, is the world’s leading provider of paper and electronic check services. . .

TeleCheck’s Web site:
www.telecheck.com/home/overview.html

Our neighbors have four unruly dogs in a yard that would be too small for four placid cats. Between our yards is a high wall and during the day, should you walk past the wall, you will be barked at with a ferocity that is impressive. During the day, this is annoying but not

really objectionable. At night, things are different. . .

At night this micropack will detect a cat, an opossum, a falling leaf or the gods-know-what, and set to baying like The Hound of the Baskervilles. A few nights ago they got into a four-part harmony at around 3

a.m. that went on for about 30 minutes and then did an encore at 4 a.m.

Do my neighbors plan to fix this? They say they have bark collars on order, but this late night serenade has been going on for more than a year, so I’m not holding out much hope for a quick fix.

I am also holding out little hope for a quick fix from a company called TeleCheck. TeleCheck, a check-clearing service, made a mistake that resulted in one of my checks — much to my embarrassment — being incorrectly declined. Let me tell you how this happened. . .

I took my car to get the stereo fixed and when I tried to pay by check, the store told me that TeleCheck had declined my check. To say I was surprised is an understatement. So I paid using a debit card (without a problem) and went home to track down the problem.

It took more than 20 minutes on the phone to deal with TeleCheck.

This, of course, required me to explain the problem and give my name, driving license details, bank details and check details twice to different people, as well as being kept on hold for perhaps 15 of the 20 minutes. I was also told repeatedly and unctuously by the on-hold message that they were going to deliver outstanding customer service when I finally got to a human being. The result was as I suspected — there was absolutely nothing wrong with my credit. They told me that they had cross-linked my file with someone else’s file.

And to add insult to injury, for me to get the error fixed, I was told that I would have to fax them a canceled check and my driving license.

“Let me get this clear,” I said, “you screw up, you know you’ve screwed up and I have to jump through hoops to get the problem fixed?”

“Yes,” replied the supervisor, “that’s the procedure.”

Now let’s consider what such a snafu takes to happen: There’s bad data collection, bad database design, bad data entry, bad data management, and of course, bad customer service. But who’s to blame?

You can reasonably get mad with supervisors, although in a company like TeleCheck they seem to be relatively powerless. Ideally you could get mad with the company’s management, but that requires you to find an e-mail address or telephone number. Which you can’t. Anywhere.

This is a company that can screw with your data, cause you embarrassment, and make you do work to solve a problem they gave you, all because they have a bad process combined with bad information technology and a customer service operation that goes through the motions but obviously doesn’t give a damn. TeleCheck’s behavior is remarkably irresponsible for such a powerful organization.

If you were the head of IT there and your systems were so pathetic, wouldn’t you expect to be fired?

Has this kind of thing happened to you? Tales of woe to nwcolumn@gibbs.com.



MARK
GIBBS



The latest on the
Internet industry

A consumer watchdog group founded by Ralph Nader put the bite on a handful of search engine providers last week for allegedly deceiving the Internet masses.

Commercial Alert filed a complaint with the Federal Trade Commission against eight search services, including Microsoft’s MSN, Netscape, Ask Jeeves, Lycos and AltaVista. These companies deserve to incur the wrath of regulators, the complaint contends, because they are failing to adequately divulge the role that payments from merchants play in fashioning the order of search results that are returned to users.

Let’s put aside the fact that even liberals can’t stomach Nader since he so cavalierly swapped the best interests of the environment — and countless other liberal causes — for a quixotic 2000 presidential run that accomplished nothing but the election of George W. Bush.

Commercial Alert is simply barking up the wrong tree.

Go to AltaVista.com and type “travel” into the search box. The page of links you’ll get back begins with an AltaVista “Featured Site,” in this case Orbitz, the airline industry ticket outlet. Next up are two “Partner Listings,” which include Orbitz again (who knows why) and Expedia.com, the Microsoft-affiliated site.

Do you need Ralph Nader to tell you that that the clearly labeled “Featured Site” and “Partner Listings” are not so designated because the folks at AltaVista judged them to be the most useful? Only a simpleton — or an overzealous consumer watchdog — could fail to understand and appreciate why the sites with megabucks at their disposal rise to the top of AltaVista’s search heap. It would be like opening the Yellow Pages and wondering why Avis gets a full-page ad and Wally’s Wrent-a-Wreck is listed in a single line of 8-point type.

After scrolling by the “Featured” and “Partner” categories, your AltaVista search for “travel” brings you to this message: “We found 36,594,310 results.” These are the entries that are apparently untainted by the stench of commercial payment. . . Knock yourself out wading through them.

Search is the second most popular online activity after e-mail. Sites that provide general Internet search capabilities need to turn a buck, of course, and it’s become painfully obvious over the years that few are likely to do so through conventional online advertising.

Charging for “partner” placement seems reasonable enough.

But consumers shouldn’t believe for a moment that their favorite search services are some kind of substitute for *Consumer Reports*.

It’s been a while since we’ve issued any “Official ‘Net Buzz Time-Frittering Recommendations,” so here are a couple of Web sites — one the pride of a *Network World* reader — that might escape the attention of your favorite search engine:

Glenn Bloom’s “The Helicopter Page” — www.geocities.com/helicopterpage/ — is clearly a labor of love. A former Army helicopter pilot and current support technician for the Federal Aviation Administration, Bloom has assembled an encyclopedic collection of facts, photos and easily understood technical explanations on how the blasted things work.

And then there’s www.roadtospringfield.com, a must-visit for any fan of “The Simpsons.” This highly interactive site combines the competitiveness of your standard March Madness office pool with the sophisticated, multilayered wit of television’s all-time best animated program.

“The Road to Springfield” is presented in the form of a single-elimination tournament featuring rotating matchups between the show’s supporting characters, who range from the familiar C. Montgomery Burns, Krusty the Clown and Chief Wiggum to lesser lights such as Dr. Nick Riviera and the late Maude Flanders. The best part is the running commentary from fans of the various combatants.

Careful: It’s addictive.

You don’t need a search engine to find me. The address is buzz@nw.com.



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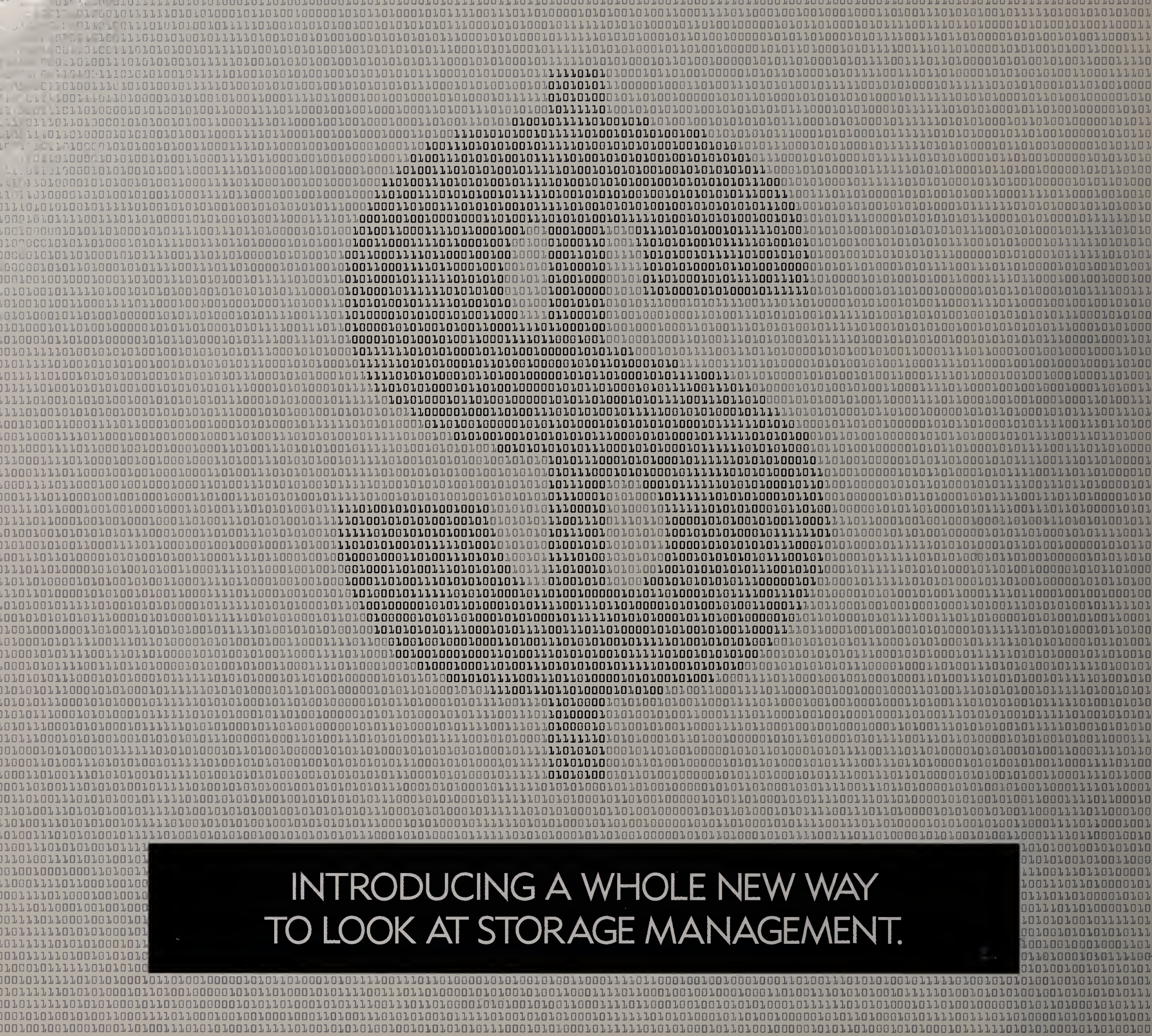


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